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# Practice As Pedagogy: Learning Through Participation In The Caribexams Online Community Of Practice

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**PRACTICE AS PEDAGOGY: LEARNING THROUGH PARTICIPATION IN THE  
CARIBEXAMS ONLINE COMMUNITY OF PRACTICE**

by

**KATHY-ANN DANIEL-GITTENS**

**DISSERTATION**

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

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**MAJOR: INSTRUCTIONAL TECHNOLOGY**

**Approved by**

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**Advisor**

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**Date**

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## DEDICATION

To God, and my mother, Joanna Daniel, without whom this dissertation would never have been possible.

## ACKNOWLEDGEMENTS

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## Chapter 1

### Introduction

As empirical research into learning in social situations increased during the 1980s and 1990s, greater emphasis came to be placed on contextual factors in learning (Greeno, 1998; Newman, Griffin & Cole, 1984; Resnick, 1987; Rogoff, 1990). The dominance of strictly cognitive learning theories (Anderson, 1982; Meyer 2005; Sweller, 1994; van Merriënboer, & Ayres, 2005) was challenged by theories of situated learning and distributed cognition (Brown, Collins, & Duguid, 1989; Dillenbourg, 1996; Pea, 1993; Wilson & Myers, 2000), constructivism and social constructivism (Duffy & Cunningham 1996; Jonassen, 1994), and anchored instruction (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990).

Based on empirical research of anthropologists, a strand of sociocultural theories was developed that presented alternative perspectives on learning (de la Rocha, 1985; Greenfield, Maynard, & Childs, 2003; Hutchins, 1994; Rogoff, 1984; Saxe, 1988; Scribner; 1984). These anthropologists focused on how learning took place “in the wild” or in everyday situations of life. Results of their empirical studies led to the emergence of sociocultural development theories. These theories became the foundation for more narrowly-focused learning theories – constructivism (Phillips, 1995, von Glasserfeld, 1990), situated cognition (Brown, Collins & Duguid, 1989, Kirshner & Whitson 1997), and instructional design models – anchored instruction (Bransford et al., 1990), and authentic learning environments (Herrington & Oliver, 2000).

An important aspect of sociocultural development theorists was their insistence that learning or learners’ developmental transformations could not be understood adequately independent of the social, cultural, and historical contexts within which they occurred. These

assertions were based on anthropological research (Beach 1995; Hutchins, 1993; Levine, Resnick & Higgins 1993; Saxe, 1997; Scribner, 1985a; Scribner & Cole, 1981). In social practice learning theory, learners' or novices' development was perceived to result from their participation in a "Community of Practice," which is a group of people engaged in common tasks and activities. Changes in novices' development were observable through changes in the quality and level of their participation in the community's practices, changes in their social relations with other members of the community, and changes in self-identification (Lave & Wenger, 1991). These theoretical conclusions were supported by empirical studies of learning among dairy workers (Scribner, 1985a), candy sellers (Saxe, 1988, 1997), weavers (Greenfield & Lave, 1982) and photocopy repair technicians (Orr, 1986, 1990) among others.

One major outcome of this growing body of empirical research into learning in social contexts was the theoretical decoupling of learning and teaching (Lave, 1997). Through ethnographic and participant observation studies, anthropologists found that much of the learning outside of school occurred without direct teaching or intentional instruction. They found, instead, that learning was a process of the developmental transformation of learners engaged in social practices; this transformation applied whether the learners were Brazilian children learning to sell candy (Saxe, 1988), groups of girl scouts learning to sell cookies (Rogoff, Baker-Sennett, Lacasa & Goldsmith, 1995), lab members learning to be research scientists (Buxton, 2001) or drinkers learning to be non-alcoholics (Cain, 1991).

### **Statement of the Problem**

One of the more radical social learning theories to emerge from sociocultural development theories was a theory of learning proposed by Lave and Wenger (1991) called the social practice learning theory. Advanced by Lave and Wenger (1991) as an analytic framework

with which to understand learning in real-life social contexts, social practice learning theory presented an innovative concept called, “Community of Practice.” The term Community of Practice is used to describe the basic social unit within which learning takes place. These units however, are not restricted to groups that meet on a face-to-face-basis; the concept quickly gained popularity as a descriptive tool for learning in online groups (Kim, 2000; Palloff & Pratt, 2007; Preece, 2003; Riel & Polin, 2004; Swan, 2002).

In current research on learning in online groups, the Community of Practice concept has been adopted enthusiastically (Bruckman, 2004, Herrington, Herrington, Kervin, & Ferry, 2006, Palloff & Pratt, 2007). It has been used to analyze and understand learning processes in these groups and to design for learning in these social contexts. The regular use of the concept makes it an accessible conceptual tool to describe, analyze, and design tasks and activities for an online group dedicated to supporting exam candidates sitting the Caribbean Examination Council (CXC) English exam.

In 17 Caribbean territories, students are required to sit for high school exit exams known as the Caribbean Secondary Education Certificate (CSEC) exams. These exams are administered by a regional examining body called the Caribbean Examinations Council (CXC) and are held twice a year in January and June. Passes in these CSEC exams are required qualifications for most types of employment in Caribbean territories and are essential for any type of postsecondary education or training that learners may wish to undertake.

In 2005, the regional examining body, CXC, in collaboration with an international agency, the Commonwealth of Learning, developed a series of print-based, self-study guides to support CXC-CSEC learners. These self-instructional, distance education materials were made available to teachers and learners across the Caribbean. The guides were designed to be used for

CXC-CSEC exam preparation by learners in and out of school settings, as well as in distance education programs (Stephens & McLeod, 2006). In addition to this initiative by the CXC, several other initiatives currently are being implemented by national education agencies in the Caribbean. These projects intend to develop multimedia learning materials to help learners prepare for these exams. In Jamaica, the Government's Ministry of Education began an e-learning project with the goal of developing multimedia learning materials that would be available to all CXC-CSEC learners, in and out of school. This initiative is expected to help improve national pass rates for the CSEC exams (Crawford, 2006).

The National Open School of Trinidad and Tobago (NOSTT) was initiated in 2007 by their Ministry of Education. One purpose of this school was to provide opportunities for out-of-school learners to participate in a program of learning that would prepare them to sit for the CXC-CSEC regional exit exams as "private candidates." To achieve this goal, NOSTT has made a commitment to use "blended and distance education methods" to provide learning opportunities for its nontraditional learners (Sampson-Ovid, 2006).

To support these initiatives by Caribbean national educational agencies, an online Community of Practice called CaribExams was created. The community's main purpose is to develop a repository of multimedia Open Educational Resources (OER) to support regional learners preparing for the CSEC exams. The central practices of the community are the collection, creation, adaptation, and rating of OER.

An important component of the community's practice is the creation and collection of members' exam stories, which provide important learning resources for all community members. For learners in the CaribExams community, these are stories of exam preparation strategies and trials and stories of skills used or acquired by providing learning resources that can be

incorporated into their understanding of the CSEC exam experience. These exam stories can help current and future CSEC exam candidates frame their exam preparation activities in ways that will be more useful to them (Lave & Wenger, 1991; Orr, 1986).

In addition to presenting CaribExams members with an opportunity to participate in the practice of the community, maintaining an online journal or “blog” about their exam experiences helps them develop their writing and technology skills. Consequently, one goal of the CaribExams community is the promotion of members’ blog writings so that these narratives can be become part of the repository’s archives; these efforts have met with little success so far. While CaribExams has seen its membership increase rapidly during its five and a half years of existence, most members have not taken advantage of opportunities available to participate in community practices. Presently, the community has more than 9,000 members, most of whom have adopted observer roles, that is, they download resources from and observe activities of the community from its periphery, without participating. Some members participate, however this participation generally does not lead to increased involvement in the community. Mainly, this participation takes the form of posted comments and consists almost entirely of requests for subject-area tutoring.

A second problem that emerges from the practical problem of the study is more theoretical. The study seeks to validate empirically prescriptive design strategies for the support of online Communities of Practice. In their social practice learning theory, Lave and Wenger (1991) provide analytic descriptions of the Community of Practice concept. However, they did not provide explicit prescriptive directives for developing or supporting these communities. Lave, (2008) asserted that the Community of Practice concept was never developed with a prescriptive intent.

Despite Lave's (2008) assertion, many design prescriptions have been developed for online Communities of Practice in the literature (Kim, 2000; Palloff & Pratt, 2007; Preece, 2003; Wenger, McDermott & Synder, 2002,). However, these design prescriptions have not been conceived using a well-developed empirical base. This study will attempt to extend the empirical foundation for the design of online Communities of Practice by investigating how members of the CaribExams community respond to theoretically-grounded design prescriptions.

### **Purpose of the Study**

Given the problems identified above, the four purposes of this design and development research study are to, (a) develop community redesign strategies for CaribExams based on the Community of Practice concept and the social practice learning theory, (b) examine the influence of these strategies on members' full participation in the CaribExams online Community of Practice, (c) identify participation trajectories of members in CaribExams and, (d) draw implications for the effective design of online Communities of Practice.

The study will examine the Community of Practice concept and its theoretical framework, the Social Practice learning theory to extract generalized guidelines for promoting members' participation in Communities of Practice. These generalized guidelines will then be used as the basis for developing and implementing community-specific redesign strategies for promoting members' participation in the CaribExams community. The CaribExams community also will be monitored to investigate the influence of the design intervention on members' participation trajectories. The data collected from this exercise will be used to propose potentially useful design guidelines for online Communities of Practice.



### *Research Questions*

Particularly, this study seeks to address the questions:

1. How do redesign strategies based on a social practice learning theory framework influence members' participation in the CaribExams' community?
2. Using design strategies based on the social practice learning theory, what participation trajectories can be identified among CaribExams members?
3. What theory-grounded design principles promote full participation trajectories in voluntary online Communities of Practice?

### **Significance of the study**

This study can benefit Instructional Designers who may be responsible for supporting the development of online Communities of Practice. The findings of the study can provide them with evidence-based guidelines that can assist them in developing these communities. The study also augments efforts of the Ministries of Education in the Caribbean which are working to develop online multimedia resources for students sitting for the CXC-CSEC exams. CaribExams provides a large repository of online multimedia resources available to Caribbean students to supplement the work of these Ministries. Results of this study can also present an alternative, evidence-based model showing how the goals of online multimedia resource development can be achieved.

Study participants also will benefit. The study provides opportunities for participants to be actively involved in developing an online repository of multimedia resources that all Caribbean students can use to prepare for their CXC-CSEC exams. The study also encourages participants to share in shaping the development of a major online Community of Practice dedicated to supporting CXC-CSEC exam preparation practices.

While multimedia resources of the repository are available for immediate use, the results of the study will provide direction for the ongoing evolution of the CaribExams Community of Practice. Finally, groups of non-course based online learners can benefit from this study since it provides evidence-based guidelines for the creation of online Communities of Practice that support their collective activities.

### **Conceptual Framework**

The central concept that guides this research study is *Community of Practice* (Lave & Wenger, 1991). This core concept is found within the social practice learning theory and has resonated with researchers of online social behaviors. As a consequence, Community of Practice is used extensively in research and discussions of learning in online social groups. As proposed, Communities of Practice foster learning through members' social participation in a group or community's joint activities or practice.

In this conceptual framework, learning is thought of as a transformation or fundamental change in learners' self-identification, social relations, and participation trajectories within the community.

- *Self identification*: learning in a Community of Practice is postulated to result in changes in the way learners view themselves; they begin to think of themselves as belonging to the community and self-identify as community members.
- *Social relations*: forming ongoing social relations with other community members based on their joint activities or practice is also a dimension of learning in this paradigm.
- *Participation trajectories*: development of participation trajectories or directions for participatory development in relation to the community's practice is another core

aspect of this conception of learning. Specifically, participation trajectories refer to the way learners participate in the community's practice and how this participatory relationship develops.

### **Limitations of the study**

The limitation of this study is that it is focused on only one online community organized for a specific cultural context and for one specific purpose. These facts mean that while the study may contribute to the development of analytic generalizations about the Community of Practice concept, it cannot provide statistical generalizations about participants' behavior in online Communities of Practice (Miles & Huberman, 1994; Yin, 2008)

**Definition of key terms****Community of Practice:**

“a set of relations among persons, activity and the world over time and in relation with other tangential and overlapping Communities of Practice” (Lave and Wenger, 1991, p. 98)

**Commonly-felt dilemma:**

“action-impelling conflicts” . . . “which become ‘owned’ by persons and which give shape and meaning to what constitutes ‘the problem’” (Lave, 1997, p. 26)

**Cultural-historical heritage:**

“...traditions and understandings in common, extending across several generations...” (Gutierrez & Rogoff, 2003 p.21)

**Legitimate Peripheral Participation:**

The process of becoming a full participant in a sociocultural process (Lave and Wenger, 1991, p.29)

**Participation trajectory:**

The direction of development of a community member’s participation (Lave & Wenger, 1991)

**Practice:**

“actions that are repeated, shared with others in a social group, and invested with normative expectations and with meanings or significances that go beyond the immediate goals of the action.”

(Miller & Goodnow (1995, p. 7)

<b>Practice artifact:</b>	Tools used in and products that result from a community's practice (Lave and Wenger 1991)
<b>Reproduction cycle:</b>	The regular cyclical addition of newcomers and slower turnover in senior members in a Community of Practice (Lave & Wenger, 1991)
<b>Social Practice learning theory:</b>	“Briefly, a theory of social practice emphasizes the relational interdependency of agent and world, activity, meaning, cognition, learning and knowing.” (Lave and Wenger, 1991, p. 50)

### Chapter summary

The CaribExams online community has been having problems living up to its goal of being an online social learning community. The problem of limited member participation is ongoing despite increasing community membership. Using this problem as the starting point, the chapter presents an initial discussion of online learning communities and the theoretical basis of the concept. The chapter goes on to discuss the redesign of CaribExams with the goals of increasing participation in the community and at the same time developing empirically validated design principles for online Communities of Practice in general. This chapter presents the research problems, study purposes, research questions and the conceptual framework that guides the study.

Chapter 2 explores the research literature to identify the theoretical and empirical basis of social practice learning theory. It also investigates widely accepted attributes of the Community of Practice concept in order to identify those specific attributes which are theoretically and

empirically supported. The purpose of this investigation is to identify those attributes which can be considered critical attributes of the Community of Practice concept. This step is a necessary prerequisite to developing validated, generalized design principles based on the Community of Practice concept.

Chapter 3 presents a detailed description of the design and development research method used in this study. Specifically, it analyzes the CaribExams community as it currently functions to determine whether it possess the critical attributes of the Community of Practice concept identified in chapter 2. This chapter also describes the method used to develop generalized design principles for Communities of Practice based on the attributes of the concept. It continues by describing the process used in developing contextualized design strategies for the redesign of the CaribExams community. Finally, this chapter lays out the implementation strategy used in the CaribExams community and the data collection methods that were applied.

Chapter 4 discusses the results of the study in detail. It discusses the implementation method used for each redesign strategy and presents a detailed analysis of the impact of those strategies on members' participation and participation trajectories.

Chapter 5 presents a discussion of the study, the conclusions that were drawn from the study results and recommendations for future lines of related research.

## CHAPTER 2

### LITERATURE REVIEW

#### Introduction

This chapter presents a comprehensive review of the literature related to participation in online communities. Participation in online communities has been the subject of extensive study by researchers for the past two decades. While many prescriptions for participation have been offered, some of these prescriptions either have not been shaped by a specific theoretical framework or they have not viewed participation through a ‘learning’ lens (Ardichvili, Page & Wenthling, 2003; Kim, 2000; Preece & Shneiderman, 2009). Selecting learning as the ‘lens’ with which to view participation in online communities, can lead to a focus on sociocultural theories of learning (Lave & Wenger 1991; Levine, Resnick & Higgins, 1993; Rogoff, 2003; Scribner and Cole,1981)

#### Sociocultural Development Theories and Learning

While anthropologists and sociocultural theorists have addressed the issue of learning, they have not always favored the term, *learning* in their research or writings. Instead, based on landmark empirical studies, sociocultural learning theorists have reframed the concept of learning. Changes in individual knowledge and skills are not viewed as a process of acquisition consistent with traditional conceptions of learning, instead, sociocultural theorists reframed learning as a developmental change process (Beach, 1995; Hutchins, 1993; Lave & Wenger 1991; Levine, et al 1993; Reed & Lave, 1979; Rogoff, 1990; Saxe, 1997; Scribner, 1988).

Learning, as postulated by sociocultural theorists, is a process of developmental change in knowledgeable skills brought about through engagement in an ongoing practice. Learning is a process that produces changes both in learners’ knowledge and skills, as well as changes in

learners' relations with the on-going practice, other learners, and learners' self-identification. Sociocultural learning theorists claimed that developmental changes in learners do not occur independently of their interactions with others. According to them, humans are socially constructed beings; ideas and tools are outcomes of the cumulative activities and practices of other human beings, and development (or learning) always occurs in the context of the use of these tools and ideas, and in relation to the people and activities that comprise the sites for action (de La Rocha, 1985; Hutchins, 1993; Lave, 1993; Scribner, 1985b).

This idea of the indivisibility of people, activities, and developmental outcomes led sociocultural theorists to assert that learning or, as they framed it, development could not be understood separate and apart from the social, cultural, and historical context within which learning occurred. This concept is valid, they argued, because cognitive activity inescapably takes place within these contexts and shapes the knowledgeable skills and identities that learners develop in relation to an ongoing practice (Brown, Collins & Duguid, 1987; Säljö & Wyndham, 1996; Lave, 1993; Scribner, 1985b).

This reconceptualization of learning as a process of developmental transformation that takes place through engagement in context-bound activities was radical for its time. This premise challenged the notion that knowledge and skills could be acquired as abstract symbols and general capabilities, held in memory to be deployed in future, specific situations. To support these propositions, sociocultural learning theorists pointed to the recurring failure of transfer studies (Ceci & Ruiz, 1993, Detterman, 1993) and their empirical findings about contextual nature of knowing and understanding (Greeno, 1989; Greenfield & Lave, 1982; Pea, 1993; Scribner, 1988; Säljö & Wyndham, 1996). Two researchers, Lave and Wenger, (1991), extended



the core propositions of socio-cultural learning theories through their social practice learning theory.

### **Social Practice Learning Theory**

Anthropologists and researchers in the sociocultural tradition, Lave and Wenger (1991, 2000) made an important contribution to the advancement of sociocultural development learning theories. They recast the process of developmental change through engagement in activities into a more popular form. In their social practice learning theory, they described learning as a process of evolving participation in a Community of Practice. Community of Practice is defined as, “a set of relations among persons, activity and the world over time and in relation with other tangential and overlapping Communities of Practice” (Lave & Wenger, 1991, p. 98). This description of maturing participation in a Community of Practice as the mechanism for individuals’ learning or ‘developmental change’ has generated a wealth of research into the process (Barab, MaKinster, Moore, Cunningham, & the Intentional Learning Forum [ILF] Design Team, 2001; Billett, 1996; Cobb & Yackel, 1996; Merriam, Courtenay & Baumgartner, 2003; Hoadley & Kilner, 2005; Moore, 1986; Rogoff, 1998).

Additionally, the term Community of Practice was not restricted to co-present groups. With the advent of new technologies that emphasized interactions among groups of geographically-distributed practitioners and novices, learning within ‘distributed’ Communities of Practice also sparked interest (Herrington, Herrington, Kervin, & Ferry, 2006; Hew & Hara, 2007; Renninger & Shumar, 2002; Squire & Johnson, 2000; Wenger, McDermott & Snyder, 2002).

While the Community of Practice concept has been widely used to describe and analyze co-present and online learning communities, the concept has become disconnected from the

social practice learning theory framework within which it was developed (Barab & Duffy, 2000; Brook & Oliver, 2003; Bruckman, 2004; Caverly & MacDonald, 2002; Swan, 2002). In working out a more complete development of the Community of Practice concept, Wenger (1998), Wenger et al (2002), moved it some distance away from its original formulation. In Wenger's (1998) version, Communities of Practice are synonymous with learning communities and "includes learning not only as a matter of course in the history of its practice, but at the very core of its enterprise" (p.215). This 180 degree turn removes practice from its position as the central motive or purpose of Communities of Practice and replaces it with learning (Barab, Kling, & Gray, 2004; Oliver, Herrington, Herrington & Reeves, 2007; Palloff & Pratt, 2007; Riel & Polin, 2004).

This change has important ramifications for many other dimensions of social practice learning theory. For instance, once Communities of Practice are accepted as synonymous with learning communities and learning is the core enterprise of these communities, the relational concept of fields of mature practice seems to have no direct relevance to Communities of Practice. It is, however, an important concept in the original formulation of the social practice theory. In later writings on Communities of Practice, Wenger (1998; Wenger et al, 2002) also abandoned the idea that Communities of Practice were identifiable by their reproduction cycles. Instead, the idea of community reproduction cycles was replaced with the concept of community *life cycle*. Based on research on Communities of Practice within organizations, Wenger arrived at the view that Communities of Practice are more like organisms in that they develop through a five-stage life cycle: (a) potential, (b) coalescing, (c) maturing, (d) stewardship, and (e) transformation (Eckert & Wenger, 1994).

Much of the current research on the Community of Practice concept adopted Wenger's (1998, 2000; Wenger, McDermott, & Synder, 2002) later writings as the basis of their work. Consequently, more recent research studies on Communities of Practice are based on an assumption of learning as the central purpose of these Communities. Additional research in this area has found that 'knowledge sharing' is also being advanced as a central purpose of Communities of Practice (Ardichvili, Page, & Wenthling, 2003; Barab, MaKinster, Moore, Cunningham, & ILF Design Team, 2001; Hew & Hara, 2007; Hoadley & Pea, 2002) These changes to the concept of Community of Practice by Wenger (1998, 2000, Wenger et al, 2002) displaced the Community of Practice concept from its original social practice theoretical framework so completely that its usefulness for designing within a social practice learning paradigm has been nullified.

To ensure that the Community of Practice concept is operationalized as originally conceived, it will be used as one element in a comprehensive implementation of the social practice learning theory framework in this study. As observed by Duguid (2008), the Community of Practice concept has not remained static in use, but has been subject to transformations and redirections. He also suggested that the central focus and meaning of the concept has been lost, asserting that Community of Practice is nothing without practice. This position is a reaffirmation of Duguid's (2005) earlier observation that with regard to Community of Practice, many researchers focus on the community aspect of the concept and neglect the practice aspect. But as Oserlund and Carlile (2005) argued, practice is important to any analysis of Community of Practice, advice that will inform this study. To use the concept, Community of Practice as originally intended by its developers, a clarification of its definition and a delineation of its

critical attributes are needed. This clarification is necessary to bring the concept into sharp focus and distinguish it in terms of what it entails.

### **Community of Practice: A Definition**

Because a goal of this study is to develop and design strategies based on a social practice theory framework, selecting a definition of the Community of Practice concept that is consistent with this theory is important. In attempting to secure a definition for Community of Practice relevant to this study, a review of literature revealed many definitions of the concept. See Table 1.

Table 1

#### *Definitions of Community of Practice Concept*

Author	Definition: Community of Practice
Lave and Wenger (1991)	“A set of relations among persons, activity and the world over time and in relation with other tangential and overlapping Communities of Practice.”
Wenger, McDermott and Snyder (2002)	“Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.”
Barab, Barnett and Squire (2002).	“A persistent sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise.”
Preece (2003)	“A group of people who come together to learn from each other by sharing knowledge and experiences about the activities in which they are engaged.”

While there seems to be minor differences between the definitions, one interesting omission stands out. Specifically, Lave and Wenger’s (1991) definition of the Community of Practice concept explicitly incorporates the idea that *overlapping and tangential* Communities of Practice are important components of the relationships that constitute a focal Community of Practice. In Lave and Wenger’s (1991) definition, a Community of Practice is recognized as being part of a network of related and overlapping communities, an idea that has empirical

support (Beach, 1995; Hogan, 2002; Hunter, 2002; Rogoff, 1998; Volman & ten Dam, 2007) and implications for design.

In particular, Hunter's (2002) study of a series of virtual online community projects for teachers' professional development, funded through the National Science Foundation (NSF), noted this influence. Hunter (2002) found that the culture of local schools was the major obstacle to teachers' adoption of collaborative roles in online communities. This finding on the impact of overlapping membership on the behavior of individuals in a target community was replicated in empirical studies by Beach (1995) and Volman and ten Dam (2007). Volman and ten Dam's (2007) study of students' participation in a school course found that the identities students formed of themselves through participation in social and family groups outside of class had a strong influence on how they related to learning experiences in the classroom. Students' overlapping membership in these communities influenced their incoming identities, participation trajectories, and ultimately, what they learned and how they learned it.

Lave and Wenger's (1991) definition of Community of Practice included the elements of the other definitions yet they were insistent on recognizing the impact of adjacent communities. This position has been supported by research (Beach, 1995; Hogan, 2002; Hunter, 2002; Rogoff, 1998; Volman & ten Dam, 2007). Thus, it is Lave and Wenger's (1991) definition that will be used in this study.

Having selected a definition of Community of Practice, the following discussion will seek to, (a) identify the critical attributes of the Community of Practice concept and (b) describe the process by which full participation is brought about within a Community of Practice. The purpose of this approach is to clarify the conceptual basis of proposed design strategies. Finally, the discussion will present an analysis of CaribExams as a distributed or technology-mediated

Community of Practice. This analysis seeks to determine the extent of congruence between critical attributes of the Community of Practice concept and attributes of the CaribExams community. The study will identify differences between the concept and the CaribExams community, and aspects of the CaribExams community that are amenable to design intervention.

### **Attributes of the Community of Practice Concept**

Based on the work of Lave and Wenger (1991), Barab and Duffy (2000) identified three attributes of Communities of Practice, (a) a common cultural and historical heritage, (b) an interdependent system and (c) a reproduction cycle. Another group of writers, Daniel, Schwier & McCalla (2003), citing Lave and Wenger (1991), identified the characteristics of Communities of Practice as: (a) shared interest, (b) common identity, (c) shared information and knowledge, (d) voluntary participation, (e) autonomy in setting goals, (f) awareness of social protocols and goals, (g) awareness of membership, and (h) effective means of communication. Wenger (1998) describes the distinguishing characteristics of Communities of Practice as: (a) practice, (b) community, (c) meaning, and (d) identity.

Other writers have distilled characteristics or attributes of a Community of Practice by referencing the work of Lave and Wenger (1991). However, these writers will not be used in the present study. This study will focus on those characteristics lists that have had the most support in the literature. Attributes of the Community of Practice concept identified by the listed writers vary to a greater or lesser degree (see Table 2) and differences in the identified attributes, may result from these writers' different understandings of core Community of Practice characteristics.

Table 2

*Attributes of Community of Practice*

Author	Attributes of a Community of Practice
Wenger (1998)	<ul style="list-style-type: none"> <li>• Practice</li> <li>• Community</li> <li>• Identity</li> <li>• Meaning</li> </ul>
Wenger McDermott, Snyder (2002)	<ul style="list-style-type: none"> <li>• Practice</li> <li>• Community</li> <li>• Knowledge domain</li> </ul>
Barab and Duffy (2000)	<ul style="list-style-type: none"> <li>• Common cultural and historical heritage</li> <li>• Interdependent system</li> <li>• Reproduction cycle</li> </ul>
Daniel, Schwier & McCalla (2003)	<ul style="list-style-type: none"> <li>• Shared interest</li> <li>• Common identity</li> <li>• Shared information and knowledge</li> <li>• Voluntary participation</li> <li>• Autonomy in setting goals</li> <li>• Awareness of social protocols and goals,.</li> <li>• Awareness of membership</li> <li>• Effective means of communication</li> </ul>

While this researcher essentially agrees with the characteristics identified by Barab and Duffy (2000), two additional attributes of Community of Practice that stand out in the work of Lave and Wenger (1991) are not listed, but have been included. One attribute is ‘practice’, which has received repeated attention by Wenger (1998) and his colleagues (Wenger et al, 2002), as well by Lave (1993, 1997, 2008) and Duguid (2005, 2008). The second attribute is the community’s relationship with mature fields of practice, which is considered important based on its alignment with the selected definition of Community of Practice.

Lave and Wenger’s (1991) Community of Practice definition is explicit in incorporating the idea that relations among community members and relations with the practice are important. They also include the community’s relations with other overlapping and tangential Communities of Practice in the relationship matrix. Relations with mature fields of practice are one type of

relations with overlapping and tangential communities. Accordingly, four specific attributes of the Community of Practice concept have been distilled for this study. They are: (a) a practice, (b) relationship with mature fields of practice, (c) a reproduction cycle, and (d) a common cultural and historical heritage.

These four attributes of a Community of Practice identify characteristics by which activity groups may be recognized as Communities of Practice. They also provide a conceptual foundation for the development of design guidelines for online groups wishing to organize themselves as distributed Communities of Practice. Since one goal of this study is to promote increased participation in the CaribExams online community using a social practice learning theory framework, identifying the characteristics that CaribExams should express as an online Community of Practice is an important first step in the process.

### **Attributes of a Community of Practice**

The four attributes of a community of practice are:

1. A practice,
2. A reproduction cycle,
3. Relationship with mature fields of practice, and
4. A common cultural-historical heritage.

**Practice.** According to Lave (1997) and Lave and Wenger (1991, 2000), a practice is the central motive of a Community of Practice. Lave and Wenger, (1991) defined practice as the regular productive activity of the community. This definition of practice, while useful, leaves much to interpretation. Other sociocultural theorists have produced more well-developed definitions of the concept that are more useful (Miller & Goodnow 1995; Scribner 1997; Scribner & Cole, 1981). In particular, Miller and Goodnow (1995) defined practice as, “actions that are repeated, shared with others in a social group, and invested



with normative expectations and with meanings or significances that go beyond the immediate goals of the action” (p. 7).

This definition by Miller and Goodnow (1995) will be used here for several reasons. Firstly, the definition agrees with Scribner and Cole (1981) that practices are socially organized, recurrent, goal-directed activities. However, it is explicit in recognizing that practices have social and cultural meanings; practices are value-laden activities. These social and cultural meanings have implications for how members of a community view the practice and themselves as practitioners (Rogoff, 1995; Saxe, 1988; Scribner, 1985, Scribner and Cole 1981).

Based on this definition, there are certain characteristics associated with an ongoing practice:

1. Cultural norms and a history based on its ongoing character (Greenfield & Lave, 1982; Pozzi, Noss & Hoyles, 1998; Rogoff, et al 1995; Scribner,1985;)
2. Engagement in culturally-specific uses of tools and artifacts (Lave, 1982; Noss, Hoyles & Pozzi, 2002; Orr, 1986; Scribner, 1985)
3. Activities and tasks of practice are given order by the demands of the practice itself (not learning). For example, deadlines are created by the boundaries of practice, action possibilities are delimited by the demands of practice, culture and history (Buxton, 2001; de la Rocha, 1985; Reed & Lave, 1979; Murtaugh, 1985, Scribner & Sachs, 1990)
4. Discourse patterns that are specific to the practice (Orr, 1986, Scribner & Cole, 1981).

Rogoff, et al (1995) observed that the practice of selling Girl Scout cookies was part of both community and family traditions in Utah. Mothers and older sisters had sold Girl Scout

cookies and community members annually looked forward to buying them. These traditions shape perceptions that current Girls Scouts have about the practice of cookie selling. For them, participating in the practice of cookie selling gives them the opportunity to participate in family, and community traditions, and to become a part of those highly valued traditions.

Similarly, when Buxton (2001) looked at the practice of members of a research lab, he discovered that there was a multiplicity of value-laden meanings attached to all aspects of their work. Participation in benchwork – the actual work of experimenting in the lab – and the relations of lab members to this practice was influenced by issues of gender, status, and hierarchy. Competing tensions of conformity and resistance also were exhibited by lab members as they negotiated their relations with the status roles and hierarchical arrangements in the lab. These tensions had an influence on the way that lab members approached their practice and their relations with it.

What emerges from these research studies is that the quality of relations between community members and their practice is not homogenous. The culture, meaning and values of a practice are not consistent for all members within a Community of Practice, nor are they consistent for members across Communities of Practice. The culture, meaning and values of a practice are, however, part of ongoing and historically evolving relations between community members and their practice in the community. Given that Miller and Goodnow's (1995) definition is explicit in its recognition of the normative and cultural dimensions of practice, and given the empirical support for their definition, it is the one that will be used here.

***Engagement with a practice.*** The question may be asked, why do people engage in a practice? Why do members participate in relations and join in recurrent activities with others in a community? While many answers may be possible for these questions, Lave (1997) posited an

answer that was framed within the sociocultural tradition. She asserted that the goal of practice was to solve ‘commonly felt’ dilemmas. Dilemmas are felt problems or conflicts that compel individuals to act in an effort to resolve them. The desire or compulsion to act on dilemmas occurs when individuals feel that there are issues which constitute problems or dilemmas *for them*. They join Communities of Practice and participate in shared activity or practice to resolve their felt dilemmas (Beach 1995; Cain, 1991; de la Rocha, 1985). Another alternative Lave (1997) proposes is that people choose to join Communities of Practice, and to *appropriate* the community’s shared dilemma/s as their own. They then engage in the ongoing practice of the Community to resolve its dilemmas.

In Cain’s (1991) study, people joined Alcoholic Anonymous (AA) because they perceived themselves as having a problem with alcohol and they believed that by joining AA, they could receive help. In a study by de la Rocha (1985), the dilemma is weight. People joined Weight Watchers to obtain help and support in their efforts to lose weight. In Buxton’s (2001) study, the dilemma that lab members faced was their desires to become research scientists. In Rogoff et al (1995), girls who sell Girl Scouts cookies have appropriated the Scout organization’s dilemma of raising sufficient funds to support its activities.

Two significant points emerged from these analyses and research: (a) Communities of Practice are dilemma-driven and entry into and participation in them is predicated on members’ commonly felt dilemmas, or their appropriation of the dilemma(s) of the community, and (b) no direct goal or mission exists to teach or change learners in Communities of Practice. One condition of a Community of Practice is that learners and the process of learning, “is not the central motive for the enterprise” (Lave & Wenger, 1991, p.93).

There are wide ranging implications for both these points, (a) to adequately understand any Community of Practice, it is important to identify the felt dilemma(s) that propel people to join the community and (b) while Lave (1996, 1997) and Lave and Wenger (1991) stressed that Communities of Practice were not created for participants to learn, and that learners were not the object of the practice or activities of the community, this characteristic of the Community of Practice concept has not always been reproduced in designed implementations. Notably, Cobb, Perlwitz & Underwood-Gregg (1998) and Cobb, Stephan, McClain and Gravemeijer (2001) conducted several studies using the Community of Practice concept that focused directly on promoting learning in math classrooms. Other researchers who utilized the Community of Practice concept and focused their research activities directly on promoting learning were:

- Squire and Johnson, (2000) in a study of the impact of interactive television on learners in a distributed Community of Practice,
- Barab, Barnett and Squire, (2002) in a study of learning by teachers in professional development program, and
- Herrington, Reeves and Oliver (2006) in a study that promoted teachers' professional development learning through reflection.

The result was that many Community of Practice research studies have made learning and learners the central goal and object of the community's practice. This strategy was a fundamental misstep that will be avoided in the present study.

***Learning through participation in practice.*** If the goal or purpose of Communities of Practice is the furtherance of an ongoing practice and not learning, how do these communities facilitate learning by their members? Lave's (1997) argument is that people join practice groups or communities because they have goals in common with the goals of the community or, they

have appropriated the goals of the community as their own. Through their participation in the community, and its shared tasks and practice, they are given opportunities for development or learning. Because learners master the ongoing practice through improvisation, no prescribed instructional or learning path exists for the practice; there are no specific algorithms for learning to be an expert practitioner and learners may arrive at different levels of practice expertise, using a variety of improvised learning methods. The empirical bases for these assertions come from many studies conducted by anthropologists and researchers from the early 1970s to the present time (Damon, 1997; de La Rocha, 1985; Lave, 1990; Murtaugh, 1985; Orr, 1990; Rogoff, 1997; Saxe, 1988; Scribner, 1988; Scribner & Cole, 1973)

Damon (1997), in particular, emphasized the process of ‘decentering’ learning. This is the process of moving learning from the focus of a community’s activities and replacing it instead with an ongoing practice. In his study of an after-school program, Damon strategically adopted the use of projects as the practice vehicle for facilitating learning. In the study, groups of students were engaged in completing projects, such as the development of a newspaper. Damon (1997) argued that students were given access to learning opportunities through their participation in these projects.

In the field of Instructional Design, the focus on decentered practice as a facilitator of learning has led to the development of instructional models, such as authentic learning environments (Herrington & Oliver 2000), project-based (Savery & Duffy, 1995) and problem-based learning (Land & Greene, 2000). The name given to the *process* of facilitating learning by participating in a community practice is “Legitimate Peripheral Participation (LPP).” Lave and Wenger (1991) asserted that legitimate peripheral participation was the process of providing

unrestricted access to a practice and structuring resources, and presented opportunities for participation *within a practice*. It is:

...the structure of *access* [my emphasis] of learners to ongoing activity and the transparency of technology, social relations, and forms of activity... the segmentation, distribution and coordination of participation and the legitimacy of partial, increasing changing participation within a community. (Lave & Wenger, 1991, p.56)

In LPP, novices learn by being given opportunities to observe and to participate in a practice using a variety of methods.

**Reproduction Cycles.** A second defining attribute of Communities of Practice is that they are self-reproducing systems. Communities of Practice are constantly regenerating themselves through, cycles of reproduction. These reproduction cycles are accomplished through regular cyclical additions of newcomers and a slower change-over in old-timers (Lave & Wenger, 1991). This regular admission of newcomers creates diversified layers of relations among community members in that, new members are always present at different levels of participation in the community. These levels are on a continuum from complete novices to advanced participants (members). The incorporation of succeeding generations of members is important to Communities of Practice because through this process, they ensure the continuation of the community and its future.

In addition, these layers of generational membership and their varied activities constitute a learning field for newcomers. The presence of layers of generational members provides opportunities for newcomers to observe, interact with, and vicariously experience trajectories of participation, learning and engagement of other more advanced learners who are further along the path toward full participation. In Cain's (1991) study, senior members of Alcoholics Anonymous modeled the process of "story-telling the AA way" and the process of changing identities. Newcomers were not explicitly taught how to story-tell the AA way or how to change

their interpretations of their drinking experiences; rather these changes were outcomes of their observations and replication of senior members' behavior in the group.

Cycles of reproduction also give rise to the existence of historical artifacts in the community. These artifacts are both products and historical records of the community's practice. As well, they provide objects of study for learners who are new to the practice (Orr, 1990; Rogoff et al 1995; Scribner, 1985). In Orr (1990), the stories shared among working technicians were used as *tools* and artifacts of their practice. The stories provided learning material for all who heard them, especially newer technicians who had less field experience in dealing with machine mishaps and customer challenges. In Scribner (1985), milkmen in a dairy factory devised a cheat-sheet that allowed them to produce quick calculations of quantities on their dairy rounds. This cheat-sheet was both a tool and an artifact that developed out of their practice and was available for other novice milkmen entering the profession and practice.

Lave and Wenger's (1991) observations on the self-regenerating nature of Communities of Practice were made in the context of research on apprenticeship systems from various parts of the world. Pointing to apprenticeship research on Mayan midwives in Mexico (Jordan, 1989), Vai and Gola tailors in Liberia (Greenfield & Lave, 1982; Lave, 1977), U.S navy quartermasters (Hutchins, 1993), butchers in U.S supermarkets (Marshall, 1972) and non-drinking alcoholics in Alcoholics Anonymous (Cain, 1991), a system of community reproduction was in place. Accordingly, Lave and Wenger (1991) contended that it was possible to identify a community that was a site of learning by identifying a reproduction cycle in operation.

**Relationship with Mature Fields of Practice.** A third significant characteristic of Community of Practice is the relationship to fields of mature practice. This characteristic is significant because it emphasized that participation in the practice of the immediate community

is not an end in itself, instead, participation in the immediate practice is a gateway to a mature practice field. In Lave and Wenger's (1991) representation of Communities of Practice, community practices are part of a larger arena of mature practice. This relationship between the practice of an immediate community and the practice of a larger, mature field of endeavor creates motivation and value for learners. By participating in the practice of an immediate community, learners are given access to the practice of an already-existing, larger arena. Communities of Practice are, by definition, engaged in relations with other overlapping communities, so participation in the immediate Community of Practice provides novices with broad access to arenas of mature practice that exists outside of their immediate community. Consequently, part of a Community of Practice's value for learners derives from its relationships with these tangential and overlapping Communities of Practice. Lave and Wenger (1991) described these relationships, "more generally, learning in practice, apprentice learners know that there is a mature field of practice for what they are learning to do...(the community's) productive relations with the world provide apprentices with...continuity based 'futures'" (p. 110). For technicians, the mature field of practice is their work in repairing Xerox machines (Orr, 1986); for lab researchers (Buxton, 1991), the mature field of practice is becoming full-time employed research scientists; for members of AA (Cain, 1991) it is becoming functioning, non-drinking alcoholics; and for Girl Scouts (Rogoff et al, 1995), it is becoming prolific cookie sellers.

**Common Cultural-Historical Heritage.** Communities of Practice, as described by Lave and Wenger (1991), are continuous, long standing groups that are centered on an ongoing, particular, social practice. The longevity of Communities of Practice is based on the fact that they are self-reproducing systems with regular reproduction cycles. An important consequence of



their long standing status is that over time, Communities of Practice develop their own history, along with cultural and social norms which influence their practice and the relations of members in and to the communities (Rogoff, Paradise, Mejia Arauz, Correa-Chivez & Angelillo, 2003). The impact of culture and history on Communities of Practice can be understood most clearly when they are viewed as threads of influence running through all aspects of community life and practice (Brown & Duguid, 1996; Greenfield, Maynard, & Childs, 2003; Lave, 1997; Rogoff et al, 1995).

For example, the meanings that novices acquire about the tools and artifacts in a Community of Practice are grounded in historical interpretations and practice of prior members and current experts in the community. For airline pilots (Noss, Hoyles and Pozzi, 2002), the use of a watch-face to estimate acceptable parameters of runway crosswind velocity during a landing is a historically-developed, community-specific and practice-specific use of a general tool i.e., a watch. In the same way, milkmen in a dairy factory regularly use a cheat-sheet for performing quick calculations of quantities on their rounds. This cheat-sheet is a historically developed tool that has become a normal part of the practice of the milkmen under study (Scribner, 1985). The narratives of past encounters with machines that are shared among photocopy repair technicians are tools for newcomers to the practice, in addition to being historical records of their practice (Orr, 1986, 1990).

Thus, the ongoing practices of communities are the products of historically devised (and continually evolving) dilemma-resolving strategies. One part of this evolution is the relations among community members. The current relations between novices, old timers, and advanced novices are influenced by patterns of role relationships established by prior members. For

example, the practice of newcomer sponsorship by senior members in Alcoholics Anonymous has developed over time (Cain, 1991; Pagano, Friend, Tonigan & Stout, 2004).

While historical influences do impact a community's present, they are not deterministic. Lave and Wenger (1991) identified a process, continuity-displacement, whereby current members of a Community of Practice, through their actions, influence the development of the community's cultural and social norms. Thus a community's present is influenced as much by its historical relations as by the practice and relations of current members. This dialectical tension in which the cultural-historical antecedents of a community influence its members' relations and practice at the same time that members are simultaneously creating the future *and history* of the community is a central theme in Lave and Wenger's (1991) and Lave's (2008) work.

By highlighting the influence of cultural-historical factors in the development of communities and their practice, the importance of a common cultural-historical heritage is emphasized. Lave and Wenger (1991) critically situated Community of Practice relative to its historical past, as well as in terms of its current social relations with other overlapping Communities of Practice. This situating encourages analyses of Communities of Practice which take into consideration, their historical influences, as well as their present social and cultural context (Rogoff et al, 2003).

### **Learning in a Community of Practice: Legitimate Peripheral Participation**

According to Lave and Wenger (1991), while learning is not the goal or object of a Community of Practice, learning nevertheless is an integral part of its practice. The process by which learning takes place in a Community of Practice is called Legitimate Peripheral Participation (LPP). Succinctly put, LPP is the process whereby new members or novices become full participants in the ongoing practice of a community or practice group. LPP occurs

when novices/newcomers are given open access to observe the practice of the community as well as structured opportunities to participate in the practice.

This theory of learning proposed by Lave and Wenger was based on anthropological research into apprenticeship systems and work groups (Cain, 1991; Greenfield & Lave 1982; Hutchins, 1993; Jordan, 1989; Lave, 1988; Lave, Smith & Butler, 1988; Marshall, 1972; Orr, 1986; Scribner, 1985). In their studies of learning in social settings, these researchers found that learning exists as an aspect or dimension of social practice in communities in which there are cyclical additions of newcomers. Learning and deepening participation in social practice is interwoven such that acts of participation are synonymous with learning for novices at all stages.

In many studies, novices move from being mainly observers with limited and peripheral participation in the practice of the community to becoming full participants in the practice. Lave and Wenger (1991) observed that in these communities, a process was in place which *legitimated* novices' peripheral participation and their learning trajectories to full participation (Cain, 1991; Hutchins, 1993; Orr, 1986,). This process is depicted graphically in Figure 1.

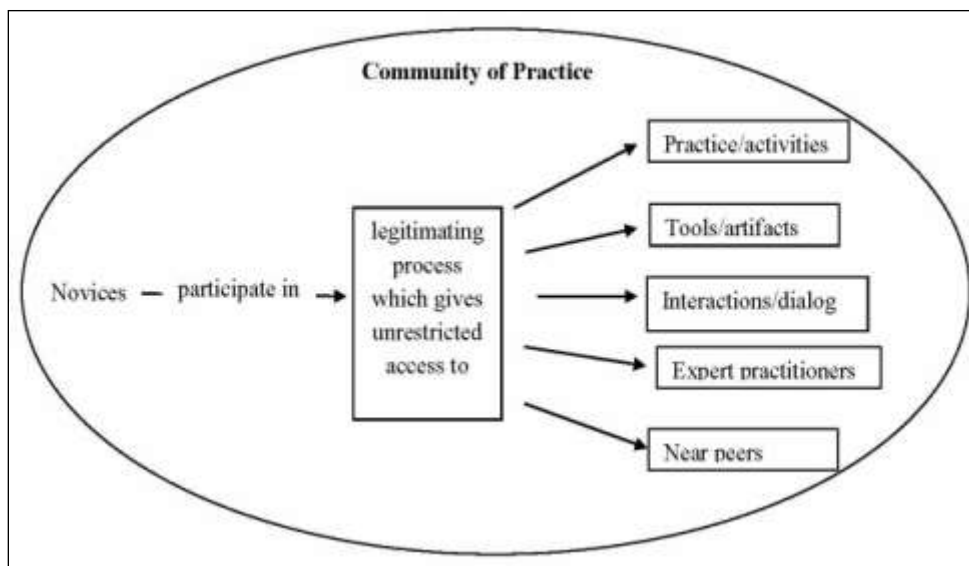


Figure 1: Process of legitimating peripheral participation in Communities of Practice

Researchers, (Graves, 1989; Lave & Wenger, 1991; Singleton, 1989), assert that the establishment of ‘intentional relations’ with a master or mentor are a basic first step in the process of legitimating participation in a Community of Practice. Beyond this however, the processes they describe varies. An interesting facet of the research that Lave and Wenger (1991) cited was that the processes for legitimating participation in the practices of communities were as varied as the practices.

For example, in Cain’s (1991) study of Alcoholics Anonymous (AA), deepening participation is legitimated through a process of story-telling and progression through the twelve steps. Old Timers in the community were leaders in helping newcomers acquire an identity of themselves as alcoholics through the use of stories or personal narratives. Old Timers told personal narratives that established models for novices of how to interpret their own drinking experiences and how to story-tell within the AA community. Not present within Cain’s study, but well-known about Alcoholic Anonymous, is the formalized sponsorship process that they maintain (Pagano, Friend, Tonigan & Stout, 2004). In AA, a sponsor is assigned to each novice. This sponsor acts to support novice activities as they progress through community-defined stages of deepening participation - the 12 steps.

In Jordan’s (1989) study, deepening participation is legitimated through an informal mentorship arrangement in which the Yucatan midwife novice acts first as an observer, then as an increasingly capable assistant to an experienced midwife. Finally, after several years, the novice would be sent as a partial, then complete, surrogate for the senior midwife, performing the duties of midwife on her own.

In other ethnographic studies of Communities of Practice for example, novice quartermasters’ deepening participation in the practice is legitimated through two activities: their

participation in joint practice activities with more experienced quartermasters and through competitive interactions with near peers (Hutchins, 1993). In Buxton (2001), the mechanism that legitimated novice researchers' participation in the practice of the science lab was through informal mentoring by senior lab members. Senior lab members assumed responsibility for training and acculturating new lab members and new lab members gradually learned skills of being a researcher by understanding and conforming to the work expectations in the lab.

In analyzing these and other studies, it was seen that multiple methods for legitimating newcomers' participation in Communities of Practice exist (Hogan, 2002; Greenfield, Maynard, & Childs, 2003; Orr, 1986; Rogoff et al, 1995). These observations were supported by Scribner and Sach (1990), who, in an empirical study of an on-the-job-training program, noted that the nature of the relationship between learning and practice in communities varied widely. They asserted that learning may be related to, or embedded in, an ongoing practice in many different ways, a conclusion that can have implications for the redesign of the CaribExams community.

Lave and Wenger's (1991) analysis of Communities of Practice emphasized that the relationship between master, mentor, experienced practitioner, and novice is not particularly important for novices' deepening participation. Instead, they pointed to novices' relations with each other and more advanced learners as the basis for changing participation levels. This assertion, however, was somewhat at odds with the research studies they cite. In these studies, the relationship between novices and mentors, whether formally or informally arranged, seem to play a substantial role in novices' process of deepening participation (Hutchins, 1993, Jordan, 1989, Cain, 1991).

In Hutchins' study (1993), deepening participation in the Community of Practice is facilitated by novices' interactions with near peers, as well as interactions and relations between

novices and senior watch standers. In this community therefore, watch standers and mentors play important roles in novices' changing participation levels in the practice. It must be emphasized however, that the mentor-novice relationships described in these studies do not resemble typical pedagogue-student relationships; they are not didactic. Rather, the relationships between mentors and novices more closely resemble the type of relationship seen between a guide/model and a novice/observer. In other studies of apprenticeship, the role of the mentor is also stressed (Hudson, 2008).

**Characteristics of Legitimate Peripheral Participation.** While a variety of mechanisms for legitimating and deepening participation in Communities of Practice have been identified, it is still possible to recognize recurring characteristics that are descriptive of the process of deepening participation which Lave and Wenger (1991) dubbed Legitimate Peripheral Participation (LPP). The characteristics are listed below and in Table 3 with supporting empirical literature. The characteristics of LPP indicate that it is a process:

1. That provides novices unrestricted access to observe experienced practitioners engaging in the activities and tasks of the community's practice. Being given opportunities to observe the practice *in its entirety*, novices have opportunities to gain holistic views of the practice, including its relations with other Communities of Practice (Jordan, 1989; Lave, 1997).
2. That allows for novices to have access to tools and artifacts of practice. This access allows novices opportunities to engage with tools of practice and to participate in improvised practice of their own. Improvised practice is when novices try out the practice of the community in an attempt to reproduce expert practice. LPP also allows for novices to interact with artifacts of the community's practice. That is, they are

- given opportunities to observe and interact with products of the community's practice at close range. They are able to observe and interact with artifacts of practice at various stages of development and reflecting different skill levels (Jordan, 1989; Rogoff, Baker-Sennett, Lacasa, & Goldsmith, 1995).
3. That supports increasing levels of responsibility for the practice by novices. As novices' participation in community practice deepens, so does their responsibility for practice outcomes. With deepening participation in practice, comes a concomitant responsibility to ensure that practice outcomes are consistent with practice norms and community standards (Jordan, 1989; Rogoff, Baker-Sennett, Lacasa, & Goldsmith, 1995).
  4. That allows for novices' increased participation in interactions and dialog surrounding the practice. The process of LPP denotes deepening participation in the activities and tasks of the community, as well as participation in the relational interactions and discourse practices of the community. As novices' participation in the Community of Practice deepens and they assume more responsibility for practice outcomes, novices' relations with other members of the community also change. They begin to participate as co-equals and near experts in the practice, and there is an associated change in their identity as community members. Additionally, they become more proficient in the discourse patterns and use of the community jargon (Levine & Moreland 1991; Rogoff, 2003).
  5. That promotes a high degree of transparency in community processes, products, technology and practices. Central to the principle of access is the principle of transparency; access to the community's practice is made more or less possible by the

level of transparency of its processes. Access to practice is facilitated or hindered by the degree of transparency of practice artifacts and practice technology (e.g., tools). If novices are unable to penetrate the workings of the practice technology, LPP can become more difficult.

Table 3

*Characteristics of the Process of Legitimate Peripheral Participation*

Characteristics of the process of Legitimate Peripheral Participation	Supporting research literature.
Unrestricted access to observe practitioners and the practice	Buxton (2001); Lave (1997); Levine & Moreland (1991); Scribner (1991)
Access to the tools of practice	Buxton (2001); Haas (1974); Hutchins (1993); Rogoff et al (1995)
Access to the artifacts of practice	Buxton (2001); Haas (1974); Hutchins (1993); Rogoff et al (1995)
Opportunities to engage in improvised practice	Buxton (2001); Haas (1974); Hutchins (1993); Rogoff et al (1995)
Opportunities to assume increased responsibility for the practice	Buxton (2001); Haas (1974); Hutchins (1993); Jordan (1989); Rogoff et al (1995)
Opportunities for increased participation in the interactions and discourse practices of the community.	Levine & Moreland (1991); Rogoff (2003)
Support for increased self-identification as a member of the community	Cain (1991); Levine & Moreland (1991)

Based on a survey of empirical studies, no standardized algorithm exists for integrating the process of legitimate peripheral participation into an ongoing community practice. While there are community *characteristics* indicative of legitimated forms of peripheral participation, these characteristics do not constrain the ways in which learning or legitimated peripheral participation can be integrated into a community practice. According to Lave and Wenger (1991) and Singleton (1989), what may be influential in determining how participation is legitimated in a community practice is the cultural-historical background of the community itself and the values



and norms of the practice. By taking into account the cultural-historical background of the community, it may be possible to arrive at a more viable strategy for facilitating deepening participation within an ongoing Community of Practice.

**Indicators of deepening participation.** In addition to the characteristics of LPP, indicators of deepening participation by novices can be identified (see Table 4). By locating these indicators of novices' deepening participation in a Community of Practice, observers can be alerted to the success of the process of legitimated participation in operation.

Table 4

*Indicators of Deepening Participation in a Community of Practice*

Indicators of Deepening Participation by Novices in a Community of Practice	Supporting Research Literature
Engagement in improvised practice; Production of improvised artifacts of practice.	Damon (1997), Orr (1986) Reed & Lave (1979), Moore (1986) Rogoff, Baker-Sennett, Lacasa, & Goldsmith (1995) Saxe (1988)
Assumption of greater responsibility for the completion the activities and/or tasks of practice.	Buxton (2001), Moore (1986) Reed & Lave (1979) Rogoff et al. (1995)
Increased engagement with the tools of practice;	Buxton (2001), Haas (1974), Hutchins (1993) Moore (1986), Orr (1986), Rogoff et al. (1995)
Increased participation in the discourse interactions in the community;	Levine & Moreland (1991); Orr (1986), Scribner and Cole (1981)
Increased adoption of the role of practice resource for newer novices	Buxton (2001)
Increased self-identification as a community member	Moore (1986), Levine & Moreland (1991), Reed and Lave (1979), Rogoff et al. (1995)

## Chapter Summary

This review draws the critical attributes of the Community of Practice concept into sharp focus. A key attribute is the nature of practice: People join a Community of Practice because they have a felt need or dilemma. Their participation in the practice originates from their belief

that by engaging with the practice, they can resolve that dilemma or need. The implication of this for the design of Communities of Practice is that alignment between the felt need of community members and the practice of a Community of Practice is important.

A second critical attribute of the Community of Practice concept is the existence of overlapping and tangential Communities of Practice. Communities of Practice cannot be properly understood nor analyzed independently of the relations which they have with overlapping and tangential Communities of Practice. For community members, these overlapping Communities of Practice confer meaning and value to their local community. A significant category of overlapping Communities of Practice is the mature fields of practice. As potential futures, mature practice fields confer value and import to Communities of Practice beyond their intrinsic worth. For community members, membership in a target Community of Practice can be seen as a gateway to desired mature fields of practice. In this sense, relations that a Community of Practice have with other overlapping and tangential communities are important for, and to, community members and the participation trajectories upon which they embark. Consequently, in designing, overlapping Communities of Practice require close attention.

A third critical attribute of Community of Practice is the reproduction cycle. The significance of a reproduction cycle for a Community of Practice is that it is indicative of the long-standing and ongoing nature of the community and the practice. Reproduction cycles provide evidence that community members participants iterate through the cycle, but the community and practice continues. These cycles are in sharp contrast to the life cycle attribute given to the concept by Wenger (2002). In addition to signaling the long-standing and ongoing nature of Communities of Practice, reproduction cycles also imply the existence of historical and sociocultural contexts for the communities and their practices. The community culture emerges

from routines and community-specific ways of implementing a practice. As Miller and Goodnow (1995) observed, the shared routines of practice include normative expectations and meanings that members invest in their activities.

The fourth critical attribute of the Community of practice concept is its cultural and historical heritage. This attribute explicitly solidifies the longevity inherent Communities of Practice. Emergence of a historical heritage and formation of a community-specific culture around practice tasks and routines is something that occurs over an extended period of time. This attribute emphasizes that, in addition to their social relations, Communities of Practice also have a history and culture that influences their current practice.

While the process for becoming a full member of a Community of Practice may be varied, it is not a haphazard. The diversity exhibited in the process of LPP is grounded in differences in the historical and sociocultural contexts of the communities and their practices. The inference is that similar practices taking place in different sociocultural and historical contexts may have different processes for legitimating participation. For design, this signals that attempts to engineer a process for legitimating participation in Communities of Practice requires sensitivity to the historical and sociocultural contexts of the communities and their practices.

Having reviewed and analyzed the theoretical and empirical literature on Community of Practice, the concept has been returned to its original context in the social practice learning theory. Conclusions drawn from this analysis were presented. These conclusions and observations will be used to inform the next stage of this study: (a) an analysis of the CaribExams community, through the lens of the Community of Practice concept as articulated within the social practice learning theory framework, (b) the generation of redesign strategies for

CaribExams, (c) the development and execution of an implementation plan for the redesign strategies, and (d) research into outcomes of the redesign and implementation process.

## CHAPTER 3

### METHODOLOGY

#### **Introduction**

The methodology that was used to collect the data needed to address the research questions is presented in this chapter. The topics that were included in the discussion are: restatement of the purpose of the study, research design, setting for the study, participants, data collection procedures, and data analysis.

#### **Restatement of the Purpose of the Study**

Given the research problems identified in Chapter 1, the four purposes of this design and development research study were to (a) develop community redesign strategies for CaribExams based on the Community of Practice concept and the social practice learning theory; (b) examine the influence of these redesign strategies on members' full participation in the CaribExams online Community of Practice; (c) identify participation trajectories of members in the CaribExams community and (d) draw broad implications for the effective design of online Communities of Practice.

The study examined the Community of Practice concept and its theoretical framework, the social practice learning theory to extract generalized guidelines for promoting members' participation in Communities of Practice. These generalized guidelines were then used as the basis for developing and implementing community-specific redesign strategies for promoting members' participation the CaribExams community. The CaribExams community was also monitored to investigate the influence of the redesign intervention on members' participation trajectories. The data collected from this exercise were to be used to propose potentially useful design guidelines for online Communities of Practice.

## **Research Design**

Development research is a research approach that focuses on the scientific study of designing Instructional Systems, materials, and processes (Richey, 1997, Richey, Klein, & Nelson, 2004; Richey & Klein, 2007). Using a variety of research methods, a major goal of development research is to study the design, development, implementation and evaluation of instructional interventions, materials, and artifacts to improve the products and processes of Instructional Design practice (Richey, 1997; Richey & Klein, 2005; Richey & Klein, 2007; Richey, Klein & Nelson, 2004). In addition development research enhances the transparency of Instructional Design processes.

## **Rationale for Conducting a Development Study**

The decision to select a development research design was based on the purposes of this study. The purposes of this research study were to develop and implement redesign strategies for the CaribExams online community, to investigate the influence of these redesign strategies on members' participation, and to draw broad implications for the effective design of online Communities of Practice. This study fits within the product and tool research category of development research as identified by Richey and Klein (2007).

Product and tool research focuses on the design and development of instructional/ learning artifacts and interventions and the resulting design knowledge. This focus typically yields two products: a design product and a research product. The design product is normally the instructional or learning intervention or artifact. The research product is a research report outlining steps, occurrences and outcomes of the design and development process. The research report usually takes the form of a case study (Richey, 1997, Richey & Klein, 2007; Richey, Klein, & Nelson, 2004).

## Research study procedures

In keeping with the research method recommended for product and tool development research, this research study used a qualitative case study method. It also followed the phases outlined for the conduct of product and tool research (Richey & Klein, 2007). These phases are: (a) analysis (b) design (c) development (d) implementation and (e) evaluation. Particularly, the phases that were followed in this study were: (a) analysis of the CaribExams community, (b) generation of community-specific, redesign strategies, (c) implementation of the redesign strategies, and (d) investigation of the influence of the redesign strategies on CaribExams members' participation.

In this case study, (a) the analysis and (b) the generation of redesign strategies for the CaribExams community were carried out prior to data collection and are described in detail in this chapter. The CaribExams community was analyzed and generalized design principles for promoting participation in online Communities of Practice were developed using the social practice learning theory. In phase 2, there was the development of community-specific redesign strategies for CaribExams.

Following these developments, the community-specific redesign strategies for CaribExams were implemented in the online community research site and data on members' participation were collected and analyzed. Since CaribExams was an already existing online community, there was no need to develop a community website from the beginning. The researcher therefore, carried out two phases in the chapter here before implementing the redesign strategies. After the two phases were executed, the CaribExams community was accessed for redesign implementation and data collection. The two preliminary phases executed here were:

1. Analyze CaribExams;
2. Generate community-specific, redesign strategies for CaribExams;

Following these two phases, the researcher accessed the CaribExams research site and,

3. Implemented the redesign strategies;
4. Collected data on members' participation and trajectories; and
5. Analyzed data on members' participation and trajectories

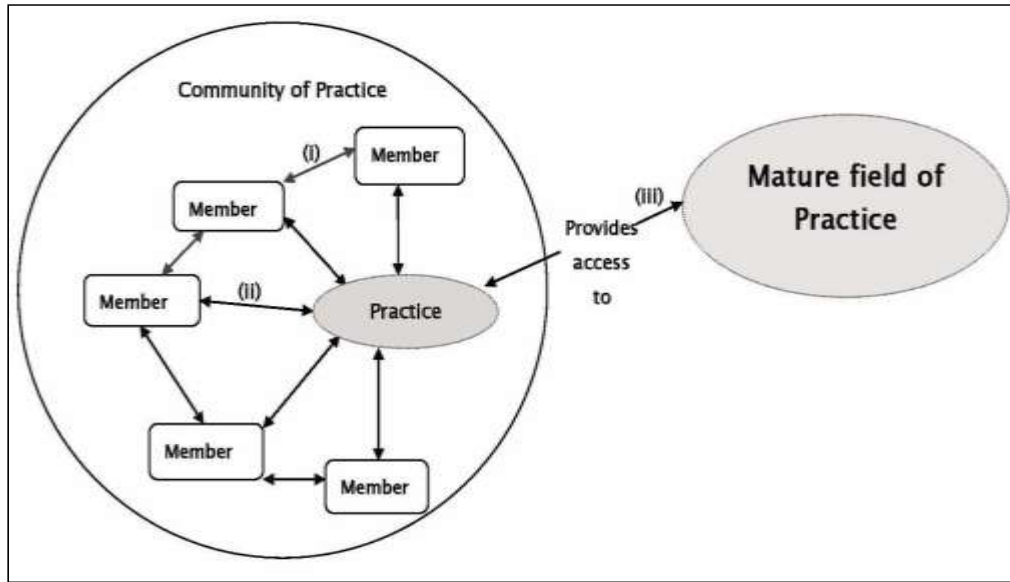
**Phase 1: Analyze CaribExams.** This first phase in the research study procedure, analyzing the CaribExams community, was a preliminary phase in this study. It took place before the researcher accessed the research site.

To develop theoretically sound redesign strategies for the CaribExams community, the extent to which the organization of CaribExams' relations and practice fits the definition of a Community of Practice and its critical attributes needed to be determined. Once this analysis was completed, an operational baseline would have been established to move to the second phase: generation of community specific redesign strategies.

*CaribExams and the Definition of a Community of Practice.* The Community of Practice concept that was adopted for this study was defined as “a set of relations among people, activity, and the world over time and in relation with other tangential and overlapping Communities of Practice” (Lave & Wenger, 1991). If this definition is represented graphically, the organization of relations in the Community of Practice concept is clearly visible (see Figure 2). These relations include: (a) reciprocal social relations between members, (b) influencing reciprocal relations between members and the practice and (c) reciprocal relations between the local practice and the practice of the mature field. The relationship between members of the local community and the practice of the mature field, while not immediately visible in the diagram, is



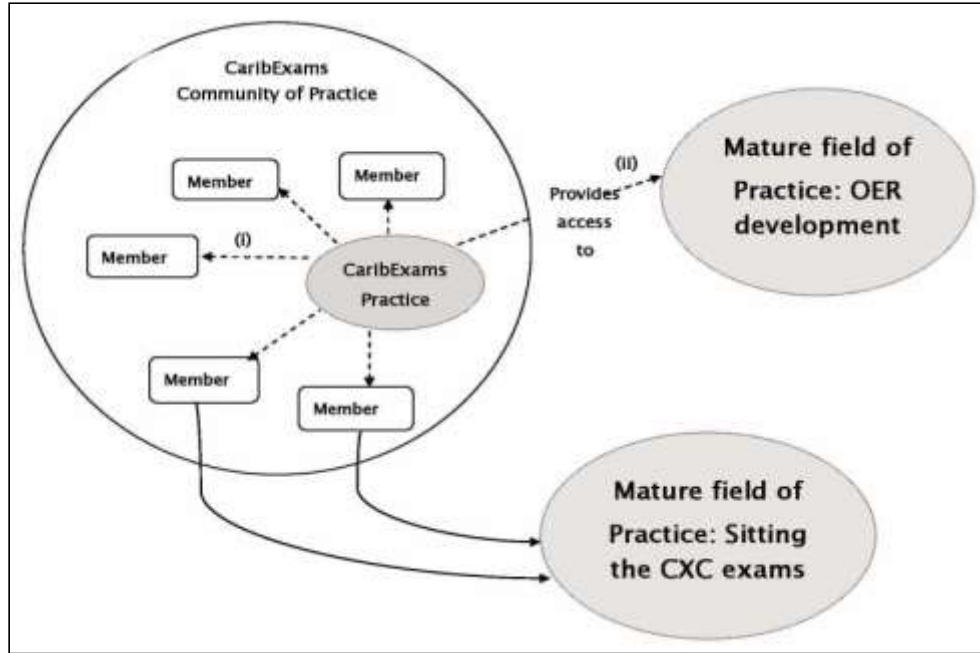
an integral part of members' relationship with the community. The practice of the local community acts as the mediator, connecting local community members to the practice of the mature field.



*Figure 2: Graphical representation of Lave and Wenger's (1991) definition of Community of Practice*

For CaribExams to be considered a Community of Practice, the organization of its relationships should be similar to those in Figure 2. However, when current relations in the CaribExams community are mapped, they differ substantially from Figure 2 and the definition of a Community of Practice. Figure 3 maps the relations in CaribExams. It shows no ongoing social relations between group members: members seldom engage in discussions with each other despite the presence of a variety of available communication mechanisms.

The relations between the majority of members and the practice of the community are also limited and one way (shown by the dotted arrows). Members do not participate in creating, collecting or adapting multimedia OER resources to any noticeable degree. Their participation consists of downloading and using the multimedia OER resources that are practice artifacts.



*Figure 3:* Graphical Representation of the Social and Other Relations in CaribExams

Relations are absent between members of CaribExams and the mature field of practice of the community. The practice of CaribExams is multimedia OER development and the mature practice field is multimedia OER development. However, the majority of CaribExams members are not preparing for this mature practice field. The felt dilemma that compels exam candidates to join CaribExams is their desire for support for a practice in which they are *already* engaged (Beach, 1995; Cain, 1991; de la Rocha, 1985; Lave, 1997). This practice is preparing to sit for the Caribbean Examination Council (CXC) English exam and the mature field of this practice is actually sitting for the CXC English exam.

This discrepancy between the goals and practice of the CaribExams community and the goals and practice of its members indicates that the dilemma driving the practice of CaribExams is not a felt dilemma for its members. Given that the felt dilemma of the community is not the same as the felt dilemma of its members, it can be expected that members will lack motivation to

participate in the community's practice. This discrepancy also indicates a gap between the theoretical conception of Community of Practice that guides this study and the CaribExams community.

***CaribExams and the Important Attributes of a Community of Practice.*** The critical attributes of the Community of Practice concept have been identified as: (a) a practice, (b) a reproduction cycle, (c) mature fields of practice and (d) a common cultural-historical heritage. These attributes are the fundamental requirements for an ongoing social practice to exist. They also describe the contextual conditions within which Legitimate Peripheral Participation (LPP; Lave & Wenger, 1991) can occur.

To be recognized as an authentic Community of Practice, the CaribExams community needed to demonstrate that it possessed the four critical attributes of a Community of Practice. CaribExams was analyzed determine whether it possessed these attributes and, therefore, could be considered a Community of Practice.

***CaribExams and Practice.*** According to Lave and Wenger (1991), practice is the central motive of a Community of Practice. According to Miller and Goodnow (1995), practice consists of “actions that are repeated, shared with others in a social group and invested with normative expectations and with meanings or significances that go beyond the immediate goals of the action.”(p. 7)

In CaribExams, the central motive and practice of the community was the production of multimedia OER development. However, this practice was not the reason why the majority of exam candidates join the community. Most CXC English exam candidates join the community to use the OER multimedia resources. The practice of the CaribExams community is attractive to CXC English exam candidates because it is *complementary* to their own pre-existing practice of

preparing to sit for the CXC English exam, not because they are interested in participating in the community's OER development practice. (See Table 5).

Table 5

*Comparison of CaribExams Attributes to the Important Attributes of a Community of Practice*

Important Attributes of Community of Practice	Comparison: CaribExams and the important attributes of Community of Practice
<ul style="list-style-type: none"> <li>• <b>Practice:</b> “actions that are repeated, shared with others in a social group, and invested with normative expectations and with meanings or significances that go beyond the immediate goals of the action.” (Miller &amp; Goodnow, 1995, p.7)</li> </ul>	<p>The practice of OER development is not shared by the majority of members in CaribExams: they do not engage in the production OER resources.</p> <p>The majority of members of CaribExams are engaged in the practice preparing to sit for the CXC English exam.</p>
<ul style="list-style-type: none"> <li>• <b>Reproduction cycle:</b> A regular cyclical additions of newcomers and a slower change-over in ‘old-timers’ in the Community.</li> <li>• The presence of layers of generational membership (Lave &amp; Wenger, 1991)</li> </ul>	<p>CaribExams reproduction cycle originates outside of the group.</p> <p>Members join CaribExams to support their membership in the community exam candidates preparing to sit for the CXC English exam and leave the CaribExams community once they are finished sitting the CXC English exam.</p> <p>The cyclical addition of newcomers in CaribExams is matched by a commensurate departure of older members. There is no extended membership in CaribExams. There are no layers of generational membership</p>
<ul style="list-style-type: none"> <li>• <b>Relationship to mature field of Practice:</b> The practices of the community are part of a larger arena of mature practice.</li> <li>• Participating in the practices of an immediate community, gives novices access to the practices of an already-existing, larger arena of practice. (Lave &amp; Wenger, 1991)</li> </ul>	<p>The OER development practice of CaribExams is part of the mature practice of OER multimedia development. CaribExams members do not join the community to engage in the practice of OER development. It is not the practice in which they are engaged nor do they wish to join the mature practice field of OER development.</p>
<ul style="list-style-type: none"> <li>• <b>A common cultural historical heritage:</b> Over time, Communities of Practice develop a history of their own and cultural and social norms which influence their practices and the relations of members in and to the communities (Lave and Wenger, 1991, Rogoff, 2003)</li> </ul>	<p>The socio-cultural norms displayed by the majority of members in CaribExams are inconsistent with the socio-cultural norms of OER development, e.g., open cooperation and collaboration. The socio-cultural norms of the majority of members reflect the cultural norms of the practice, preparing to sit for the CXC English exam.</p>

*CaribExams and Reproduction Cycle.* In CaribExams, the impetus for members’ reproduction cycle originates outside of the community. Every year, two new groups of students are registered to sit for CXC CSEC exams. The turnover in CaribExams membership is

determined by members' participation in these exam cycles. Members join the community when they are preparing to sit for the CXC English exam and generally cease participating once they complete the exam. Because of this organization, the CaribExams community does not possess the reproduction cycle attribute of the Community of Practice concept described in the social learning theory. Lave and Wenger (1991) noted that reproduction cycles in Communities of Practice promote the presence of layers of generational membership in the community. These layers of membership consist of novices at varying levels of full participation in the community's practice. Newer novices, more advanced novices and early old timers provide several things: their activities provide historical artifacts of the community's practice for novices; they provide exemplars of deepening participation; diversified layers of relationship; and a perceptible trajectory for novices' deepening participation in the community's practice.

The artifacts of practice produced by layers of membership in a Community of Practice also vary by expertise levels (Singleton, 1989). Access to these artifacts provides novices with an inside view, giving them opportunities to observe the arc of expertise development in the community's practice. In CaribExams, there are no layers of generational membership. Members' participation generally is sustained for a very short period of time, while they are preparing to sit for the CXC English exam. Once they sit the exam, they leave the community. This is inconsistent with the theoretical representation of the Community of Practice concept.

*CaribExams and mature practice field.* There is a difference between the mature practice field of the CaribExams community and the mature practice field of many of its members. The mature practice field for the CaribExams community practice is multimedia OER development. The mature practice field for many CaribExams members is sitting for the CXC English exam. This lack of alignment between the mature practice field for the CaribExams

community and the mature practice field for many of its members is inconsistent with theoretical representation of the Community of Practice concept.

*CaribExams and common cultural historical heritage.* The cultural values motivating the participatory approach of many members in CaribExams are influenced by their pre-existing practice of preparing to sit for the CXC English exam. In this pre-existing practice, the regional examining agency, CXC, distributes awards to outstanding exam candidates annually. These outstanding exam candidates are regionally recognized and individually rewarded at the end of every annual exam cycle.

As a consequence of this practice, for CXC exam candidates, information that is useful in sitting for the CXC English exam is a high-value resource which grants competitive advantage to its holders. These resources are, therefore, not freely shared, this is a position that has been articulated repeatedly by members in the community. The general view is that sharing information resources can negatively impact one's own chances of receiving recognition and/or rewards from the CXC examining authority, and can affect the quality of exam grade one receives.

As a result of these beliefs, most members in CaribExams, while preparing to sit for the CXC English exam, perceive that useful information should be closely guarded and shared only with close allies until after exams. After exams, based on time and inclination, members may choose to share information with other CaribExams members. This approach is the antithesis of open cooperation and collaboration, which are the cultural values at the center of CaribExams community practice. This divergence between the cultural values of CaribExams community practice and the cultural values of community members' pre-existing practice associated with preparing to sit for the CXC English exam reinforces the notion that the current configuration of

the CaribExams community is inconsistent with the conception of Community of Practice present in social learning theory (Beach 1995).

This analysis revealed several important issues: (a) the dissimilarity between the social practice theory conception of Community of Practice and the CaribExams community as it is currently configured and (b) the lack of congruence between critical attributes of Community of Practice and attributes of CaribExams.

The stated practice of the CaribExams community is not the practice in which the vast majority of its members are engaged. While a reproduction cycle exists within the community, it does not originate in the community, it does not produce layers of generational membership and it does not produce diversified field of relations. Members' relations with mature practice fields are not derived from their membership in the CaribExams community. CaribExams has no power or ability to influence or impact members' relations with the mature field of practice toward which they are working. As a consequence, unlike archetypical Communities of Practice, CaribExams does not mediate the relationship between members' and the mature field of practice toward which they are working. Finally, while a cultural tradition is found in the practice of multimedia OER development, this cultural tradition is not binding on and does not influence the majority of CaribExams members. This is because the majority of CaribExams members do not participate in the practice of multimedia OER development.

Having completed an analysis of CaribExams, the next phase was to generate redesign strategies. The goal of these redesign strategies was to produce greater alignment between the theoretical concept of Community of Practice as it is represented in social practice learning theory and the organization and attributes of the CaribExams community.

**Phase 2: Generate redesign strategies for CaribExams.** This second phase in the research study procedure focused on generating redesign strategies for the CaribExams community based on the social practice learning theory. This research procedure was carried out in this section before the researcher accessed the CaribExams research site.

The redesign process for CaribExams utilized a theory-grounded design approach, or, more succinctly, a grounded design approach (Bednar, Cunningham, Duffy & Perry, 1995; Snelbecker, 1974, Wildman & Burton, 1981). Grounded design is the process of translating descriptive, analytic learning theories of ‘what is’ into prescriptive, synthetic designs for ‘what should be’ (Bednar, Cunningham, Duffy & Perry, 1995; Snelbecker, 1974; Wildman & Burton, 1981). Bednar et al, (1995) described this process as one in which concepts and strategies present in descriptive theories are extracted and developed into prescriptive design frameworks for use by practitioners. The steps that were followed to extract and develop prescriptive principles from the social practice learning theory were:

1. Listed the definitional requirements and critical attributes of the Community of Practice concept, based on the Social Practice learning theory.
2. Abstracted generalized design principles for Communities of Practice based on the definition and critical attributes, and justified these principles by reference to empirical literature.
3. Developed community-specific redesign strategies for CaribExams, consistent with generalized design principles *and* constraints in the design situation.

***Definitional requirements of the community of practice concept based on the social practice learning theory.*** The definition of Community of Practice that guided this study was, “A set of relations among persons, activity and the world over time and in relation with other



tangential and overlapping Communities of Practice” (Lave & Wenger, 1991, p. 98). Therefore, using this definition, the requirements for a group to be defined as a Community of Practice are:

1. Ongoing social relations between members centered on a shared practice;
2. Ongoing relations between members and the shared practice of the community;
3. Similarity in members’ relational relationship to tangential and overlapping Communities of Practice.

**Abstract generalized design principles for communities of practice.** Based on the definition of Communities of Practice and identified critical attributes of these communities, some generalized design principles were derived for the support of Communities of Practice, more specifically, online Communities of Practice. These principles were supported by reference to empirical studies.

Table 6

*Generalized Design Principles: Based on the definition of Community of Practice (Lave & Wenger, 1991)*

Definition of a Community of Practice	Abstracted Generalized Design Principles	Supporting Empirical Literature
“A set of relations between persons, activity and the world and in relation to other overlapping and tangential Communities of Practice” (Lave and Wenger, 1991, p. 98)	<i>Relations between members:</i> There should be ongoing social relations between members, centered on a shared practice.	Hudson, (2008); Hutchins (1993); Lave (1992) Scribner (1985, 1988)
	<i>Relations between members and the shared practice:</i> Members should participate in the ongoing, routine activities and tasks which constitute elements of the shared practice.	Hudson (2008); Hutchins (1993); Lave (1992); Scribner (1988); Buxton (2001)
	<i>Relations between members and the mature field of practice (overlapping and tangential Communities of Practice) external:</i> Members should stand in the same/similar objective relations to the desired mature practice. <i>internal:</i> members should view themselves as	Beach (1995); Buxton (2001); Lave (1992); Scribner (1985b, 1988)

Definition of a Community of Practice	Abstracted Generalized Design Principles	Supporting Empirical Literature
	<p>having same/similar trajectories of participation and development in relation to the mature practice.</p> <p><i>Relations between members and the world:</i></p> <p><i>External:</i></p> <p>Members should stand in the same/similar objective relations to the world.</p> <p><i>Internal:</i></p> <p>Members should view themselves as having the same/ similar desires in relation to the world.</p>	<p>Beach (1995); Buxton (2001); Hutchins (1993); Lave (1992)</p>

Table 7

*Generalized Design Principles: Important Attributes of a Community of Practice*

Critical Attributes of a Community of Practice	Abstracted Generalized Design Principles	Supporting Empirical Literature
Practice	There should be alignment between the practice of the community and the 'felt' dilemma of community members.	Levine & Moreland (1991); Rogoff et al (1995)
	The practice of the community should be organized so that novices can have a broad overview of the whole practice.	Greenfield & Lave (1982); Hudson, (2008); Hogan (2002)
	Structured and articulated opportunities should be created for novices to regularly participate in the activities and tasks of the practice.	Beach (1995); Buxton (2001) Hudson, (2008); Hutchins (1993)
	There should be a formally articulated, structured process for gradually assigning more responsibility for practice activities to novices.	Buxton (2001); Hogan (2002)
	Opportunities should be created for novices to have unrestricted access to the tools and artifacts of the practice.	Hudson, (2008); Hogan (2002); Orr (1986);
	Tools used in the community should be consistent with the tools used in the mature field of practice.	Beach (1995); Hogan (2002); Hudson, (2008)
	Artifacts of practice produced in the community should be consistent with artifacts produced by practice in the mature field.	Damon (1997); Hogan (2002); Hunter (2002)
Reproduction cycle	There should be a structured process in place for the cyclical addition of novices to the community.	Levine & Moreland (1991);
	Structured opportunities should be created for members to interact with near peers and expert practitioners about their shared practice.	Buxton (2001); Hogan (2002); Hudson, (2008); Levine & Moreland (1991); Orr, (1986);
Relationship with a mature field of practice	There should be alignment between the practices of a mature field and the practice of the immediate community.	Beach (1995); Hogan (2002); Hudson, (2008)
A common cultural-historical heritage	The socio-cultural norms supported in the community should be consistent with the socio-cultural norms in the mature field of practice.	Beach (1995); Hogan (2002); Hunter (2002); Noss, R., Hoyles, C., and Pozzi, S. (2002);

The process of abstracting generalized design principles from descriptive theories requires a focus on the theories with the goal of interpreting and translating them into generalized design principles. The wholesale application of generalized design principles to a specific design problem, however, neglects the reality of specific design conditions, constraints and/or demands that must be addressed (Gibbons, 2003). Deriving community-specific design solutions required that focus was re-directed to the design problem or design space where the generalized principles were set to be implemented, with the goal of making them situationally-relevant (Gibbons, 2003).

To achieve this goal, the generalized design principles for Communities of Practice that were identified in Table 6 and Table 7 were adapted and made applicable to the CaribExams community. Table 8 shows the recommended redesign strategies for CaribExams and the generalized Community of Practice design principles from which each redesign strategy was adapted.

Table 8

*Recommended Redesign Strategies for CaribExams*

Community of Practice: Generalized Design Principles	Recommended Redesign Strategies for CaribExams
<ul style="list-style-type: none"> <li>• There should be alignment between the practice of the community and the ‘felt’ dilemma of community members.</li> <li>• There should be alignment between the practices of a mature field and the practice of the immediate community</li> </ul>	<p>The practice in CaribExams should be re-oriented <i>from</i> the production of multimedia OER resources <i>toward</i> the practice of sitting the CXC English exam.</p> <p>The CaribExams practice should become aligned with the mature practice: sitting the CXC English exam; The relationship between CaribExams’ practice and the mature practice: sitting the CXC English exam should be formally articulated and transparent throughout the community;</p>
<ul style="list-style-type: none"> <li>• The practice of the community should be organized so that novices can have a broad overview of the whole practice.</li> <li>• There should be a structured process in place for the cyclical addition of novices.</li> </ul>	<p>There should be screen casts giving an overview of the community and its practice – tasks and activities.</p> <p>A formal invitation should be extended to members of CaribExams for novices to join the practice group. Novices should be selected to participate in the practice. This will initiate intentional relations between selected novices and the practice.</p>
<ul style="list-style-type: none"> <li>• Structured and articulated opportunities should be created for novices to regularly participate in the activities and tasks of the practice</li> </ul>	<p>Institute and promote weekly cycles for the production of practice artifacts e.g.</p> <ul style="list-style-type: none"> <li>• Model answers for CXC English exam questions;</li> <li>• best CXC English exam study timetables;</li> <li>• “my favorite CXC exam prep strategies” and</li> <li>• links to best CXC English exam resources on the internet.</li> <li>• Development of a FAQ list for the English exam; Novices should be encouraged to first assist in the production of, and then themselves, produce practice artifacts on a weekly basis.</li> </ul>
<ul style="list-style-type: none"> <li>• Tools used in the community should be consistent with the tools used in the mature field of practice</li> </ul>	
<ul style="list-style-type: none"> <li>• Artifacts of practice produced in the community should be consistent with artifacts produced by practice in the mature field.</li> </ul>	<p>CaribExams practice artifacts should be shifted to focus on the production of:</p> <ul style="list-style-type: none"> <li>• Model answers to sample CXC English exam questions;</li> <li>• Sample CXC English exam study timetables;</li> <li>• the collection of CXC English exam study strategies;</li> <li>• CXC English exam-taking strategies and the</li> <li>• Collection of CXC English exam preparation resources.</li> </ul>
<ul style="list-style-type: none"> <li>• Opportunities should be created for novices to have unrestricted access to the tools and artifacts of the practice.</li> </ul>	<p>Novices should have access to: the tools:</p> <ul style="list-style-type: none"> <li>• the expanded WYSIWYG html editor for submitting their posts;</li> </ul>

Community of Practice: Generalized Design Principles	Recommended Redesign Strategies for CaribExams
<ul style="list-style-type: none"> <li>• Structured opportunities should be created for members to interact with near peers and expert practitioners about their shared practice.</li> </ul>	<p>The artifacts:</p> <ul style="list-style-type: none"> <li>• All the resources of the CaribExams community.</li> </ul> <p>Special forum boards should be dedicated to discussions on:</p> <ul style="list-style-type: none"> <li>• developing model answers to sample CXC English exam questions;</li> <li>• collecting CXC exam study timetables;</li> <li>• collecting CXC English exam study strategies;</li> <li>• collecting CXC English exam resources online;</li> </ul> <p>Specific time-frames (weekly) should be established for asking and answering questions on the practice.</p>
<ul style="list-style-type: none"> <li>• There should be a formally articulated, structured process for gradually assigning more responsibility for practice activities to novices.</li> </ul>	<p>When novices have displayed mastery of the basic set of practice skills in the community, they should be formally invited to assume responsibility for more complex/ advanced practice skills.</p> <p>For example: novices should be asked to</p> <ul style="list-style-type: none"> <li>• select sample CXC English questions to be answered</li> <li>• assess model CXC English answers;</li> <li>• assess and rate CXC English exam resources;</li> <li>• assess and rate CXC English exam study strategies;</li> <li>• assess and rate CXC English exam study timetables.</li> </ul>
<ul style="list-style-type: none"> <li>• The socio-cultural norms supported in the community should be aligned with the socio-cultural norms in the mature field of practice.</li> </ul>	<p>CaribExams should identify, model and support the socio-cultural norms for the practice: sitting the CXC English exam;</p> <p>Modeling the norms for participation in the CXC English exam:</p> <ul style="list-style-type: none"> <li>• Novices should be allowed to submit one artifact for each practice task/activity;</li> <li>• Modeling the norms for interactions between CXC English exam peers:</li> <li>• Novices should be allowed to interact competitively in the production of practice artifacts.</li> </ul>

### Phase 3: Implement Redesign Strategies

This third phase in the research study procedure which focused on implementing the redesign strategies, took place in the CaribExams research site. With the design phase completed, this phase began with implementation of community-specific redesign strategies from Table 8. Implementation procedures followed in CaribExams are presented in this section.

**Implementation procedures.** The developed redesign strategies from Table 8 were implemented in CaribExams over a 4 week period. Two weeks prior to the start of the implementation phase, screen casts were posted to the community showing steps for participating in the CaribExams practice. For example, the screen casts provided instructions on how to create blog entries. They also showed how to post comments to the discussion forum and to community content/artifact areas. This strategy ensured that the practice of CaribExams was accessible and transparent to members and that, as far as possible, barriers to participation in the technological environment were minimized.

In addition to screen casts of tool use, screen casts that described the practice of the community and current opportunities for members' participation in the practice were also made available. A calendar of community events was posted and updated regularly. This calendar showed current and upcoming practice activities taking place in the community. Study participants were able to signal their interest in participating in the practice by signing up for activities listed on the calendar. The complete list of redesign strategies implemented and the procedures that were used in implementing them are presented in Table 9.

Table 9

*Implementation Procedure for Redesign Strategies in CaribExams*

Community of Practice: Generalized Design Principles	Recommended Re-design Strategies for CaribExams	Implementation Procedure
<ul style="list-style-type: none"> <li>• There should be alignment between the practice of the community and the felt dilemma of community members.</li> </ul>	<p>The practice in CaribExams should be re-oriented <i>from</i> the production of multimedia OER resources <i>toward</i> the practice of preparing to sit for the CXC English exam.</p>	<p>Screen casts describing and explaining the new practice were posted in the community</p>
<ul style="list-style-type: none"> <li>• There should be alignment between the practices of a mature field and the practice of the immediate community</li> </ul>	<p>The CaribExams practice should become aligned with the mature practice: sitting for the CXC English exam; The relationship between CaribExams' practice and the mature practice: sitting for the CXC</p>	<p>Screen casts were posted in the community showing the relationship between the new practice in CaribExams and the practice of sitting for the CXC English exam. Members received a broadcast email alerting them to the posted screen</p>

Community of Practice: Generalized Design Principles	Recommended Re-design Strategies for CaribExams	Implementation Procedure
	English exam should be formally articulated and transparent;	casts.
<ul style="list-style-type: none"> <li>The practice of the community should be organized so that novices can have a broad overview of the whole practice.</li> </ul>	There should be screen casts giving an overview of the CaribExams community and its practice – tasks and activities.	Screen casts were posted showing how to participate in the new practice of the community. Members received a broadcast email alerting them to the posted screen casts.
<ul style="list-style-type: none"> <li>There should be a structured process in place for the cyclical addition of novices.</li> </ul>	Novices should be selected to participate in the practice. This will initiate intentional relations between selected novices and the practice.	A formal invitation was extended to CaribExams members and guests to join the practice group. Approximately 20 members were invited to participate in the study.
<ul style="list-style-type: none"> <li>Structured and articulated opportunities should be created for novices to regularly participate in the activities and tasks of the practice</li> </ul>	Institute and promote weekly cycles for the production of practice artifacts e.g. <ul style="list-style-type: none"> <li>Model answers for CXC English exam questions,</li> <li>Sample CXC English weekly study timetables,</li> <li>CXC exam preparation strategies and</li> <li>Collection of links to best CXC English exam resources on the internet.</li> </ul> Novices should be encouraged to, first assist in the production of and then themselves produce practice artifacts on a weekly basis.	A calendar of weekly activities was developed and posted. The calendar showed current and upcoming practice activities. Members were given opportunities to sign up to participate in the weekly activities
<ul style="list-style-type: none"> <li>Tools used in the community should be consistent with the tools used in the mature field of practice</li> </ul>		Members were encouraged to use standard English in all communications in the community
<ul style="list-style-type: none"> <li>Artifacts of practice produced in the community should be consistent with artifacts produced by practice in the mature field.</li> </ul>	CaribExams practice artifacts should be shifted to focus on the production of: <ul style="list-style-type: none"> <li>Model answers to sample CXC English exam questions;</li> <li>Sample CXC English study timetables;</li> <li>the collection of CXC English study strategies;</li> <li>CXC English exam-taking strategies and the</li> <li>collection of online CXC English exam preparation resources.</li> </ul>	One week was allotted for the production of: <ul style="list-style-type: none"> <li>* model CXC English essays;</li> <li>* CXC English exam preparation strategies;</li> <li>* CXC exam-taking strategies;</li> <li>* model study timetables;</li> <li>* lists of online topic- specific exam preparation resources;</li> </ul> Members were asked to review and comment on a weekly basis on the artifacts produced.
<ul style="list-style-type: none"> <li>Opportunities should be created for novices to have unrestricted access to the tools and artifacts of</li> </ul>	Novices should have access to: <ol style="list-style-type: none"> <li>the tools of practice:               <ul style="list-style-type: none"> <li>*editable writing space;</li> </ul> </li> </ol>	Screen casts explained how to post to individual blogs, community wikis and forums, as well as how to



Community of Practice: Generalized Design Principles	Recommended Re-design Strategies for CaribExams	Implementation Procedure
the practice.	<ul style="list-style-type: none"> <li>* an online dictionary/ thesaurus;</li> <li>(ii) the artifacts of practice:</li> <li>* model essays, exam preparation strategies, test-taking strategies</li> <li>model timetables;</li> </ul>	post comments.
<ul style="list-style-type: none"> <li>• Structured opportunities should be created for members to interact with near peers and expert practitioners about their shared practice.</li> </ul>	<p>Members' blogs should be dedicated to the collection of practice artifacts and discussions on:</p> <ul style="list-style-type: none"> <li>• developing model answers to sample CXC English exam questions;</li> <li>• collecting CXC English study timetables;</li> <li>• collecting CXC English exam study strategies;</li> <li>• collecting CXC English exam resources online;</li> </ul> <p>Specific time-frames (weekly) should be established for asking and answering questions on the practice.</p>	<p>Members were encouraged to develop their personal blogs as portfolios of their practice artifacts. Members were encouraged to contribute constructive reviews of individual blogs and practice artifacts on a weekly basis.</p>
<ul style="list-style-type: none"> <li>• There should be a formally articulated, structured process for gradually assigning more responsibility for practice activities to novices.</li> </ul>	<p>When novices have displayed mastery of the basic set of practice skills in the community, they should be formally invited to assume responsibility for more complex/ advanced practice skills. For example: novices should be asked to</p> <ul style="list-style-type: none"> <li>• select sample CXC English exam questions to be answered</li> <li>• assess model CXC English answers,</li> <li>• assess and rate CXC English exam resources;</li> <li>• assess and rate CXC English study strategies</li> </ul> <p>assess and rate CXC English study timetables.</p>	<p>Participants were asked to</p> <ul style="list-style-type: none"> <li>• Assist in selecting or developing sample CXC English exam questions to be answered</li> <li>• Assist in assessing model CXC English answers,</li> <li>• Assist in assessing and rating CXC English exam resources;</li> <li>• Assist in assessing and rating CXC English exam study strategies</li> <li>• Assist in assessing and rating CXC English exam study timetables</li> </ul>
<ul style="list-style-type: none"> <li>• The socio-cultural norms supported in the community should be aligned with the socio-cultural norms in the mature field of practice.</li> </ul>	<p>CaribExams should identify, model and support the socio-cultural norms for the practice: "preparing to sit for the CXC English exam". Modeling the norms for participation in the CXC English exam:</p> <ul style="list-style-type: none"> <li>• Novices should be allowed to submit one artifact for each practice task/activity;</li> <li>• Artifacts produced by novices should be ranked on a six point</li> </ul>	<p>Study participants were allowed to post only one practice artifact in response to each weekly activity posted. Like in the CXC English exam, participants will be ranked on a six point scale in terms of their performance on each practice activity. Every week, the most highly ranked activity in each category will receive special recognition: they</p>

Community of Practice: Generalized Design Principles	Recommended Re-design Strategies for CaribExams	Implementation Procedure
	scale <ul style="list-style-type: none"> <li>• Special recognition should be given to the most highly ranked artifacts produced</li> </ul> Modeling the norms for interactions between CXC English exam peers: <ul style="list-style-type: none"> <li>• Novices should be allowed to interact competitively in the production of practice artifacts.</li> </ul>	will be posted in a community 'Hall of Fame' wiki for CXC English exam artifacts. This is in keeping with the CXC English exam practice. The ranking of artifacts and selection for inclusion into the hall of fame will be carried out by senior community members instead of by peer selection. This is also in keeping with CXC English exam practice.

### Setting for the Study

The study took place in an online voluntary Community of Practice called CaribExams. This community was selected because of the researcher's ongoing relationship with the community. The researcher founded the community approximately five and a half years ago to provide targeted Open Educational Resources (OER) for out-of-school, Caribbean Examination Council (CXC) English exam candidates. The researcher's close relationship with the community allowed greater access to the field site, and made it possible to study this design intervention over an extended period.

The practice in the CaribExams community consisted of developing multimedia content in online wikis, discussion forums, and blogs. The CXC English exam wiki consists of a description of the content area of the exam, assessment objectives, tutorials covering exam content areas, exam marking schemes, time management guidelines, annual pass rates, textbook reviews, and exam model questions. In addition, members could maintain their own blogs, as well as posting comments to the discussion forums and almost all content in the community space. Community facilities also included a community calendar that tracks and promotes CXC

exam-related events, a private messaging system, and chat capability that members could use to communicate with each other.

### **Participants**

The participants in this study were members of the CaribExams community who were preparing to sit for the CXC English exam. A purposeful sampling procedure was used for the study. Participants in the sample were members of the CaribExams community and invited guests who were over 18 years of age, living in any of the Caribbean countries, and who were preparing to sit for the CXC English exam. Adults were selected for participation in the study because it was expected that their CXC English exam preparation practices would be less influenced by in-school examination cultures and in-school exam practices. The size of the sample selected reflects the fact that there are much fewer adult CXC English A exam candidates who are members of the CaribExams community as well as the expectation that the research design and data collection methods selected would yield large quantities of narrative data to be analyzed. Therefore, in this instance, a quota selection was made (Miles & Huberman, 1994).

Members of CaribExams are usually anonymous, with users selecting their own user names. To protect their privacy, and for the purposes of this study, research participants were identified only by the pseudonyms they normally used in the website. Members who agreed to participate in the research study were asked to provide telephone contact information so that they could be interviewed by telephone. An attempt was made to ensure that study participants are representative of CXC exam participating countries.

### **Phase 4: Data Collection**

The fourth phase of the research study, collecting data, took place in the research site, CaribExams.org. Data were collected over a 4 week period. Based on the types of questions in

the study, two categories of information were collected: (a) demographic and perceptual data from CaribExams members' and (b) descriptive data on their activities in the CaribExams online community. Using semi-structured interviews, information was obtained on why participants joined CaribExams, what they perceived as the practice of the CaribExams community, how members perceived the relevance of the community practice to their needs and goals and what their expectations and goals are for participating in the community.

Using records retrieval, information was also collected on what CaribExams members did in the online community: the frequency of and strategies they used when participating, along with the quality of that participation. Specifically, data were collected on members' production of practice artifacts and their interactions with other community members.

Operational indicators of participation in the CaribExams community were the production of practice artifacts and communication between study participants. That is, the tangible products that resulted from members' participation in the community practice and their communications with each other. These artifacts included members' production of sample CXC English essays; study timetables; as well as lists and reviews of exam preparation strategies, test-taking strategies, exam resources. The operational indicators of participation measured the quantity as well as the type of practice artifacts.

Study members' communications with each other were also operational indicators of community participation. Indicators of communication were exchanged private messages, blog comments and chat communications that members had with each other; this included reviews they gave on practice artifacts created by other members.

Based on information needed for the study, two primary data collection methods were used: (a) semi-structured telephone interviews and (b) website records retrieval. The semi-

structured interviews collected pre- and post-intervention data from study participants. Records retrieval collected archival records stored in the community database and logs from the system on which the online community is hosted. See Table 10

**Semi-structured interviews.** Telephone interviews with study participants were conducted prior to and following the redesign intervention (See Appendix C & D). The initial interviews were used to obtain information on members' perspectives of the CaribExams community practices prior to implementation of the redesign strategies. The post-intervention interviews focused on members' perceptions of the changed practice and their views on how they felt it corresponded with their intentions in becoming members of CaribExams. The interviews also collected data on members' perspectives of their participation trajectories. The interviews were semi-structured to allow research participants freedom to express their opinions and perspectives on the redesign strategies, while maintaining control over the content of the interviews.

The interview data collected were guided by two interview protocols (Appendix C & D) which were developed specifically to operationalize the research question: How, if at all, do redesign strategies based on a social practice learning theory framework influence members' participation in the CaribExams community? The content for the questions was taken from the research supported in Table 4. *Indicators of Deepening Participation* by novices in a Community of Practice. Interview data were recorded on an audio recorder and stored as wav files. The interviews were manually transcribed.

In order to ensure the confidentiality of research data, they were stored in a password-protected folder on my computer. Access to the researcher's computer was password-protected. The researcher also backed up files on an external hard drive which was also password-protected.

As an incentive to participate in the research study, five \$50.00 Amazon gift cards were offered. The drawing was conducted and gift codes distributed to e-mail addresses by a separate party after the research study was completed.

The advantage of using interview data was the ability to collect subjective, reactive data. This data collection method allowed an investigation into participants' perceptions of their community practice experience. It also allowed collection of data on participants' level self identification with the community, a core aspect of deepening participation (Lave & Wenger, 1991).

**Records retrieval.** Archival records were collected from the CaribExams community database at the end of every week for 4 weeks. Study participants' postings to their members' blogs, the community discussion forums, and community wikis, as well as their comments in all community spaces were collected. Chat logs and intra-community messages logs also were collected. The data were collected as text files. The text files were coded and results were compiled into a composite report.

Several advantages existed for the use of archival records as a data source for this study: Archival records provided a stable and non-reactive source of data. Also, archival records were generated and collected for the specific purpose of this study and therefore met expectations for relevance in documentary data in a case study (Yin, 2008).

The relationship between the research questions that guided this study, information required to answer the questions and data sources are presented in Table 10.

Table 10  
*Relationship between Research Questions, Information Needed, Data Source and Research Phases*

Research Questions	Data Required	Data Sources	Data Collection Methods	Research Phase
How, if at all, do redesign strategies based on a social practice learning theory framework influence members' participation in the CaribExams' community?	Perceptions of CaribExams members on the relevance of the community practice to their felt needs and their mature practice field. Perceptions of CaribExams members about the value of participating in the community practice perceptions of members on their self-identification with CaribExams	CaribExams members	semi-structured interviews	Design strategy development
				Data collection
				Data analysis
Using design strategies based on the Social Practice learning theory, what, if any, participation trajectories can be identified among CaribExams members?	Quantity of times and duration of members' access of the community, before and after the designed intervention	Records of members' system access	Records retrieval	Design strategy development
				Data collection
	Quantity of practice artifacts produced by members before and after the designed intervention Quality of practice artifacts produced by members before and after the designed intervention	Records of members' postings to individual blogs, community wikis, and discussion forums.		Data collection
				Data analysis
				Data collection
Quantity of interactions initiated and to which members responded before and after the designed intervention Quality of interactions initiated and to which members responded before and after the designed intervention	Records of members' messages, chat sessions and posted comments in the system	Records retrieval	Data collection	
			Data analysis	

Research Questions	Data Required	Data Sources	Data Collection Methods	Research Phase
What theory grounded design principles promote full participation trajectories in voluntary online Communities of Practice?	List of designed interventions which produced the most changes in members' participation trajectories	Data analysis report of this study	document analysis	Data analysis

### Phase 5: Data analysis

The fifth phase of the research study, analyzing data, took place away from the CaribExams research site. The global purpose of data analysis is to make sense of research data by reducing, transforming and interpreting them in order to draw conclusions (Miles and Huberman, 1994).

**Coding.** In this case study, data were analyzed using thematic coding. Consistent with the notion of changing participation as the movement from peripheral to full participation, three significant locations on the participation continuum were identified. They are (1) peripheral participation, (2) transforming participation, (3) full participation. Thematic codes were used to assign data to one of the three participatory points on the continuum. There were four thematic codes used in the study; they were derived from Table 4, *Indicators of Deepening Participation*. The four theme codes were (1) felt dilemma, that is, participants expressing a need which they see as being filled by their participation in the CaribExams Community of Practice. (2) perceived community practice, that is, participants recognize and understand what is the practice of the community. (3) participation trajectory, a thematic code, included all activities directed toward the production of community artifacts e.g., increased production of practice artifacts, increased engagement with the tools of practice, adoption of role of practice resource for other members,



(4) self-identification, isolated data focused on participants' community self-identification e.g., extended interactions with other community members and the assumption of greater responsibility for the continuation of the community practice. The study used one coding protocol across both data types (Appendix E). The use of one common coding protocol allowed for the identification of persistent themes and patterns across both data types (Baher, 2000).

Table 4

*Indicators of Deepening Participation in a Community of Practice*

Indicators of Deepening Participation by Novices in a Community of Practice	Supporting Research Literature
Engagement in improvised practice; Production of improvised artifacts of practice.	Damon (1997), Orr (1986) Reed & Lave (1979), Moore (1986) Rogoff, Baker-Sennett, Lacasa, & Goldsmith (1995) Saxe (1988)
Assumption of greater responsibility for the completion the activities and/or tasks of practice.	Buxton (2001), Moore (1986) Reed & Lave (1979) Rogoff et al. (1995)
Increased engagement with the tools of practice;	Buxton (2001), Haas (1974), Hutchins (1993) Moore (1986), Orr (1986), Rogoff et al. (1995)
Increased participation in the discourse interactions in the community;	Levine & Moreland (1991); Orr (1986), Scribner and Cole (1981)
Increased adoption of the role of practice resource for newer novices	Buxton (2001)
Increased self-identification as a community member	Moore (1986), Levine & Moreland (1991), Reed and Lave (1979), Rogoff et al. (1995)

Weekly data analysis activities included summarizing the frequency with which participants produce community artifacts and communicated with each other in the community. In addition, the type and quantity of practice artifacts and participant interactions were evaluated on a weekly basis.

Interview data were analyzed using the three participation points and the thematic codes derived from Table 4, *Indicators of deepening participation*. The first step in analysis began with the transcription of interviews.

New data files were created where the responses for each interview question were aggregated. After completing this step, the researcher reviewed the responses for each question, and used a color code associated with each thematic code to determine which direction, if any, members' participation trajectories were moving.

**Composite Reports.** After initial coding of all documents -interview data, and artifacts, a document organized by the themes used in the coding scheme was developed. Under each theme, respective data indicating the location of the original source material were noted. Thus, for any theme, several pieces of data from different participants were included. In addition, the information from the records retrieval was included as supporting data under the different themes since the same coding scheme was used for both types of data.

**Validity.** Validity refers to the credibility and accuracy of research findings in measuring what they say they are measuring (Creswell, 2008). Procedures that were followed to ensure the validity of research findings in this study were: (a) triangulation of data collection methods and data types – data were collected through different sources of evidence, e.g., participants' interview data as well as through retrieval of records of their participation in the community to assess convergence on facts. Members' responses to post interview questions and data on their actual participation in the community were checked for alignment between their assertions and their actual participation levels and trajectories. Members' pre- and post-interview questions were also checked for alignment.

(b) member-checking – in order to rule out rival explanations, it was planned that research participants would be provided with summaries of researcher interpretations of their participation patterns. Research participants would then be asked to evaluate whether researcher interpretations of their participation patterns are accurate. This was not possible however since it was very difficult to secure telephone interviews with research participants. The majority did not respond to email requests for appointments for telephone interviews and when contacted, they were unwilling to commit to reviewing the interview transcripts.

(c) prolonged immersion – in order to develop an in-depth understanding of post-intervention , participatory changes, data were collected weekly, for 4 weeks, on the quantity and quality of participants' involvement in the community. It was initially expected that the researcher would be a non-participant observer in the community. However, she was encouraged by study participants to comment on their activities and so became a participant observer in the study.

(d) review by an external auditor – project data, analyses and results were reviewed by external researcher to rule out potential alternative explanations of the data and to neutralize study researcher bias. Study data were presented to a second researcher in the field and her opinion was solicited as to whether the researcher's interpretations of the data were consistent the data. (Merriam, 1998; Miles and Huberman, 1994; Yin, 2008).

**Reliability.** Reliability refers to the extent to which research findings can be replicated (Yin, 2008). Measures that were taken to ensure reliability of the study were (a) followed a transparent case study protocol and (b) developed a case study database.

For this case study, procedures followed in the analysis and design phases of the CaribExams intervention were documented. In continuation of this strategy, instruments and

procedures used for data collection and data analysis of the implementation phase were documented. This provided a clear audit trail for study replication.

A case study database was developed to store raw data collected in the study, e.g., participants' responses to interview questions and tracking data on participants' activities in the CaribExams community. The study database also stored data displays in tabular and matrix forms. These tables and matrices contained data aggregated from raw study data and were the products of the data analysis phase of the study (Yin, 2008). The case study database was formally and systematically developed; it also exists independently of the report for this case study.

### **Ethical considerations**

**Consent procedures.** An open invitation flyer published in CaribExams invited members over 18 years of age to participate in the study and gave a description of the research study (Appendix A). Simultaneously, broadcast system email invitations were also sent to members of the community in the event they did not see the flyer. Potential research participants were assured of their privacy. The invitation flyer contained a hyperlink to the informed consent form.

The Informed Consent form was hosted on the independent third party website, SurveyMonkey. The consent form required research participants to declare their age, eligibility, location and telephone number. For those interested study participants who were not existing members of the CaribExams community, they were asked to provide an email address and website username so their accounts could be created. The informed consent form did not require a real name or signature to indicate agreement to participate in the study. Instead, prospective research participants were asked to supply an electronic initial signature for the informed consent form. While participation cannot be totally anonymous because of the need to obtain telephone

numbers, research participants were assured that any information they provided to the researcher during the interviews were confidential and that no individual would be identifiable in the final report (Appendix B).

### **Limitations of the Study**

A limitation of the study was the scarcity of senior community members present to support novices' participation trajectories, to produce practice artifacts and to model tool use among other things. As discussed previously, due to CaribExams members' participation in the annual CXC English exam cycles, rapid turnover in community membership is constant. As a consequence, CaribExams lacks naturally diversified layers of generational members who can act as mentors to newer members.

A second limitation of this qualitative case study is that it lacks statistical generalizability to other online Communities of Practice. This is due to the small sample size used and the qualitative nature of the data collected. Instead, the study is useful for providing an in-depth understanding of design issues related to online Communities of Practice. These issues can be studied in the future using other methods that support statistical generalizability.

### **Chapter summary**

This chapter described the developmental research methodology used in this study of the CaribExams online Community of Practice. It also describes the rationale for the methodology selected and the phases present in this type of study. The first two phases of the developmental study were also carried out in this chapter: Namely, there was an analysis of the CaribExams community (phase 1) and the generation of redesign strategies for the community (phase 2). In addition to executing the first two phases of the research study, this chapter gave an overview of the implementation plan and procedure used in the redesign process (phase 3) as well as an

overview of the data collection methods used (phase 4). Finally, this chapter presents an overview of the data analysis procedures that were followed in the study and the limitations that were encountered.

The following chapter presents a detailed discussion of the implementation procedure used in the study, data collected and the data analysis methods used to arrive at study results. The chapter also frames the results of the study in terms of how they answer the study research questions.

## CHAPTER 4

### RESULTS

This chapter presents the results of a community redesign project in the CaribExams online community. The purpose of the study was to identify community redesign strategies for the CaribExams community based on the Social Practice learning theory, implement those strategies and examine their influence on twenty community members' trajectories of participation. Based on results, it was also a goal of this study to draw implications for the effective design of online Communities of Practice.

In summary, data analysis from the study showed that:

1. For 55 percent (11) of study members, there was an increase in their participation in the community practice and in community communication and interactions as a result of implementing the community redesign strategies. Participation trajectories for the majority of study participants changed from peripheral to transforming, however, they never attained full participation.
2. There was no increase in participation or community interactions for 45 percent (9) of study participants as a result of implementing the community redesign strategies.
3. It is possible to draw limited implications for the effective design of online Communities of Practice from this study.

To review, the research questions this study attempted to answer were three:

1. How do redesign strategies based on a social practice learning theory framework influence members' participation in the CaribExams' community?
2. Using design strategies based on the social practice learning theory, what participation trajectories can be identified among CaribExams members?

3. What theory-grounded design principles promote full participation trajectories in voluntary online Communities of Practice?

This chapter will present the results of data collected in the CaribExams community in the following sections. Section one will present demographic data on the research participants. Section two will present the study procedure for the pre- and post-redesign intervention telephone interviews and the community redesign changes that were implemented. Section three will present detailed responses to the research questions. Responses will be supported by excerpts and numerical aggregations of data derived from the study procedure. Section four will summarize the results of the study.

### **Demographic Data on Research Participants**

An invitation flyer was posted on the front page of CaribExams inviting all CaribExams members to participate in the research study. A broadcast email was also sent to all community members email inboxes inviting them to participate in the research study. There was little initial member interest in participating in the research study. A second and third call then went out to invite new members to join the research study and the CaribExams community. Coordinators of Adult Education classes in Montserrat, Dominica and St Lucia were contacted and they were given the Community website address to pass on to interested students.

These calls for participation were more successful. In the end, 15 new members and 5 existing members completed the informed consent form hosted at SurveyMonkey and became study participants. See Table 11. The study participants were 20 adult learners from 9 Caribbean islands. See Figure 4. The group consisted of 7 males and 13 females (Table12) and all plan to sit for the CXC CSEC English exam in January or June 2013.

Throughout this research study, participants were identified only by their CaribExams



website pseudonyms to protect their identities. To protect their privacy and confidentiality, no real names of research participants were used; instead, research participants all selected website usernames by which they were known in the study.

Table 11

*Length of Membership in CaribExams Community*

Membership Status	
New Members	15
Existing Members	5
	n=20

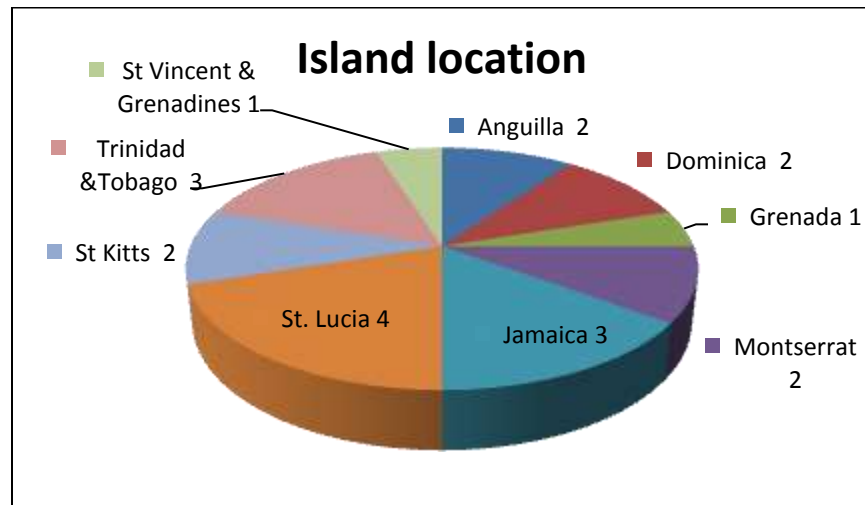


Figure 4: Geographic Location of CaribExams Research Participants

Table 12

*Study Participant Gender Data*

Gender	Participant count	Percentage
Male	7	35
Female	13	65
	n = 20	100

## Study Procedure

This study took place over a four and a half week period between October 31st 2012, and December 2<sup>nd</sup>, 2012. It initially consisted of four days of acclimatization to the online community for new CaribExams community members. This was followed by pre-intervention, semi-structured telephone interviews administered to research participants, a 4 week period during which community redesign strategies were implementation and post-intervention, semi-structured telephone interviews at the end of the study.

**Pre-intervention telephone interviews.** New members who signed up for the research study were given 4 days to familiarize themselves with the previous design of the CaribExams online community. On the fourth day of this acclimatization period, a broadcast email was sent out to all research participants. This email thanked participants for joining the study, reminded them of the study length and informed them they would be eligible to win one of 5 USD 50.00 Visa gift cards should they complete the study. They were also requested to indicate a date and time when they would be available for pre-intervention telephone interviews.

One means of communication with all study members was by broadcast email sent from the community website. Participants were asked to respond by email giving a date and time when they were available to conduct the pre-intervention telephone interview. There was a 10 percent response rate to this request: two participants responded and appointments were made to talk to them by telephone. Despite a lack of response, telephone calls were made over the next several days to the other 18 participants in the study. They were asked if they would agree to be interviewed at that moment. This took place during the first week of observation in the CaribExams online community. Twenty study participants were interviewed to find out their

impressions of the CaribExams community before community redesign strategies were implemented. They were interviewed using a pre-intervention interview schedule (Appendix A).

**Community redesign strategies implemented.** While pre-intervention telephone interviews were being conducted, planned redesign changes were instituted in the CaribExams community. Following is a description of the redesign changes that were implemented.

*Week 1 community redesign changes.* The redesign changes instituted in week 1 were the posting of screen casts which described the practice in CaribExams. The screen casts also demonstrated how to create blog entries, send website emails and instant messages and how to post comments to blogs and discussion forums.

A calendar of community activities was posted weekly to the front page of the community website (Appendix F). The calendars of weekly activities consisted of English essay questions based on past CXC CSEC examinations which participants were invited to answer. It also included an invitation for participants to review and comment on multimedia tutorial resources in the community. Answers to the English essay questions were to be posted to participants' blogs. Comments on multimedia tutorials could be posted directly on the tutorial web page. English essay answers were reviewed by the researcher and comments were posted to the participants' blogs. Study members were encouraged to review each other's essay answers and post comments to members' blogs. An award winning CXC CSEC model English essay was also posted. This essay was posted as an example of the type of practice artifacts which study participants were practicing to produce.

A broadcast email (Appendix G) was sent out to all study participants informing them that the week's activity calendar was posted and encouraging them to login and sign up for practice activities in which they wished to participate.

***Week 2 community redesign changes.*** The community redesign changes implemented in week 2 was a repetition of the previous week. A calendar of weekly activities was also posted to the front page of the website in week 2, with the exception that the essay topics were changed, the tutorial links were changed and a second award winning model English essay was added to the artifact collection. A second weekly broadcast email, almost identical to the first one was also sent out informing study members that the week's activity calendar was posted and inviting them to participate. The only change in the weekly broadcast email was a change in the deadline date for submission of practice artifacts – essays and tutorial reviews.

***Week 3 community redesign changes.*** The redesign changes implemented in week 3 were slightly different. Unlike the first two weekly calendars, in week 3, participants were expressly encouraged to produce exam study strategy recommendations and recommendations for supplemental websites. While opportunities to produce these practice artifacts existed in the community in the previous 2 weeks, in week 3, study participants were expressly encouraged to produce them (Appendix H). It must be noted that this activity was *in addition to* the regular weekly invitation to produce practice English essays. A third award winning CXC CSEC model English essay was also posted and added to the artifact collection. A weekly broadcast email was sent out at the start of week 3 informing study participants that the weekly activity calendar was posted. It also requested that they login and participate in the activities.

***Week 4 community redesign changes.*** The calendar of activities posted for week 4 was very similar to activities posted for weeks 1, 2 and 3. The only difference was that for week 4, the essay topics were changed and a fourth award winning CXC CSEC model English essay was added to the artifact archive. For this fourth and final week of the study, broadcast emails were sent out to all study participants informing them that the weekly calendar of activities was

posted. They were again encouraged to login and participate in activities and to comment on other's practice artifacts. (Appendix I).

In post intervention interviews, 100 percent of study participants reported that they received the CaribExams community weekly broadcast emails in their inbox. 11 study participants (55%) logged in to the community website, posted to their blog portfolios, commented on others' postings and communicated by system email. Nine participants (45 %) also reported that they logged into the community website but did not participate in the practice they observed taking place there. When asked why they did not participate, they offered a variety of reasons. The reasons appearing most consistently were: (1) problems with the computer, (2) lack of internet access, and (3) lack of time due to work and family responsibilities.

**Change in research strategy.** While the researcher planned to be a detached observer in the CaribExams community for the purpose of the study, she in fact became a Participant Observer. This came about as study participants posted requests for her comments on artifacts produced and for clarification of posted practice activities. There appeared to be an expectation among active study participants that the researcher would be participating in CaribExams community activities. Given that she had requested their participation in the study, the researcher felt compelled to fulfill this expectation to a degree. However, her participation was limited to responding to members' requests. The potential threats introduced by this change and their remedies will be discussed in the limitations section of this chapter.

Researcher participation consisted solely of posted comments to participant produced practice artifacts. These comments were of a supportive nature and encouraged study participants in their efforts. For example, the researcher offered praise to members who posted weekly

essays and blog entries to the website. She also commented on posted essays, suggesting writing strategies to individual study participants which they could use to improve their essay writing skills. For example, she would recommend that participants review specific multimedia tutorials or review other practice essays (practice artifacts) to get ideas of how particular types of essays were organized. In this respect, the role the researcher played in the study could be seen as analogous to the role of a master practitioner in a Community of Practice. Comments posted by the researcher were not included in the data collected on study participants' interactions.

**Post intervention telephone interviews.** At the end of 4 and a half weeks, in the last weekly broadcast email that was sent out to study participants , a request was made that they respond to the email giving a date and time when they would be available for a post intervention telephone interview (Appendix B). There was a 20 percent response rate to this request. The 2 study members who responded to the first request for telephone interviews, again responded giving dates and times when they could be contacted by telephone. Again, despite a lack of response, telephone calls were made over several days to the other 18 participants in the study. They were asked if they would agree to be interviewed at that moment. This took place in the week following the fourth week of the research study.

### **Research Questions and Study Results**

Study data will now be presented to answer the three research questions.

Research question one.

1. How do redesign strategies based on a social practice learning theory framework influence members' participation in the CaribExams' community?

In this research study, participation was operationally defined as the production of practice artifacts in the online community and communication and interaction with other community

members. It was found that redesign strategies based on a social practice learning theory framework did influence some members' participation in the CaribExams online community minimally; it encouraged a deepening of participation in the community practice. Before the study, CaribExams community members' participation could best be described as peripheral: While members' logged in and utilized the multimedia tutorials, they did not produce community artifacts themselves and there was no communication between community members. While some members did post comments, these comments usually did not receive responses nor did they result in any extended interactions with other community members.

After redesign strategies were implemented, there was an increase in member participation in the new community practice. Pre- and post-redesign interview questions with members provided responses which supported the premise that community redesign strategies influenced their participation. However, it was through observing the process of their participation in the CaribExams online community that it was possible to identify how it was affecting their participation.

During the first week of the study, the community website experienced its largest increase in member participation. 40 percent of study members participated in community activities. They produced community practice artifacts in the form of English essay answers and reflective writings in their personal blogs. They interacted by adding comments to other participants' artifact postings. They also exchanged email messages in the community website. These were all indicators of participation trajectories that were transforming.

While the number of members participating in practice activities in CaribExams was large in week 1 of the study, this did not remain consistently so throughout the four weeks of the study. In the second week, fewer members participated in the production of community artifacts.

This decline continued for the next 3 weeks until only 25 percent of study members participated in the production of practice artifacts during the fourth week of the study. See Table 13.

Table 13

*Number of Study Members Participating in CaribExams Community Each Week*

Week	1	2	3	4
No. of study members	8(40%)	7 (35%)	4 (20%)	5 (25%)

Using the four thematic codes: felt dilemma, perceived community practice, participation trajectory and self-identification derived from Table 4, *Indicators of Deepening Participation*, study members activities in the CaribExams community were categorized to determine how the redesign strategies influenced their levels of participation.

**Felt dilemma.** In pre-intervention interviews, 100 percent of study participants expressed a desire for support and assistance for their preparations for the CXC English exam. They all indicated that they were willing to join the research study because they felt that participating in it and the CaribExams community would help them prepare for their English exam. Therefore, a felt dilemma for CXC English exam support was clearly present in all study participants *before* the redesign strategies were implemented. In fact, it appears that this felt dilemma preceded the implementation of redesign strategies and was what impelled them to join the research study and the CaribExams community (Appendix J).

As an indicator of members' deepening trajectory toward full community participation, this thematic code appears somewhat weak and probably should not have been included. This appears to be the case since a felt dilemma was consistently present in 100 percent of study participants who were not yet exposed to community redesign strategies. It also appears to be a weak indicator of members' participation levels since 100 percent of study members confirmed a



felt dilemma, yet only 55 percent of them participated in the community and the research study. Also, for those who did elect to participate in the research study, their community participation levels varied widely.

**Perceived community practice,** In telephone interviews conducted before the redesign strategies were implemented, 100 percent of study participants were unable to articulate what was the practice or major activity taking place in the CaribExams community. The most common response was that the purpose of the community was ‘to help you study’. Zero percent of study participants were able to indicate members’ activities that they observed taking place in CaribExams.

Given that study participants were unable to perceive a members’ practice taking place in CaribExams, it followed that they did not take part in the practice of the online community. When asked what type of activities would encourage them to participate in CaribExams, 90 percent of study participants’ responses were vague; several stated that they did not know. One participant suggested that they should be able to post questions on the English exam and get answers to them quickly. Another participant suggested that he would like to be able to take practice quizzes in English grammar and punctuation; there are already practice quizzes in English punctuation and grammar in the community website.

In telephone interviews conducted after community redesign strategies were implemented, there was a marked change in study participants’ perception of the CaribExams community practice. With respect to this indicator of deepening participation, 100 percent of participants stated that they observed the introduction of the new practice in the CaribExams community. They expressed a clear understanding of the member practice in the community: they all knew and stated that the community practice involved members writing practice English

essays, peer reviewing English multimedia tutorials and other participants' essays and contributing exam advice to the community (Appendix J).

It appears, therefore, that when the community's practice was perceived as more transparent by members, they found it more accessible and they were more likely to participate in the practice. When the CaribExams community was redesigned to make its practice more transparent to members, they were able to perceive the community practice more clearly and their participation levels increased; by participation level increase, it is meant that members' production of practice artifacts increased beyond its previous level of zero (Table 14). Members' communication and interactions with other community members also increased (Table 16). This increase in artifact production signals that transparency of practice in voluntary online Communities of Practice is a useful strategy for deepening participation. Transparency of practice makes the community practice more visible and therefore more accessible to novices: this creates better opportunities for their participation.

**Participation trajectory.** During the research study, the frequency of practice artifact postings in CaribExams was used as an operational indicator of members' participation trajectory. Before the study began, CaribExams members did not produce any practice artifacts in the community. For the duration of the study, the frequency of artifact postings in the CaribExams community increased significantly. As can be seen in Table 15, there was a marked increase in artifact posting during the first week of the study; this was the result of a sharp increase in participants' blog reflections as the study began. In their reflections, participants spoke about their expectations for the study and their intentions for the next four weeks. Mary, one study participant typified many blog reflections when she wrote,

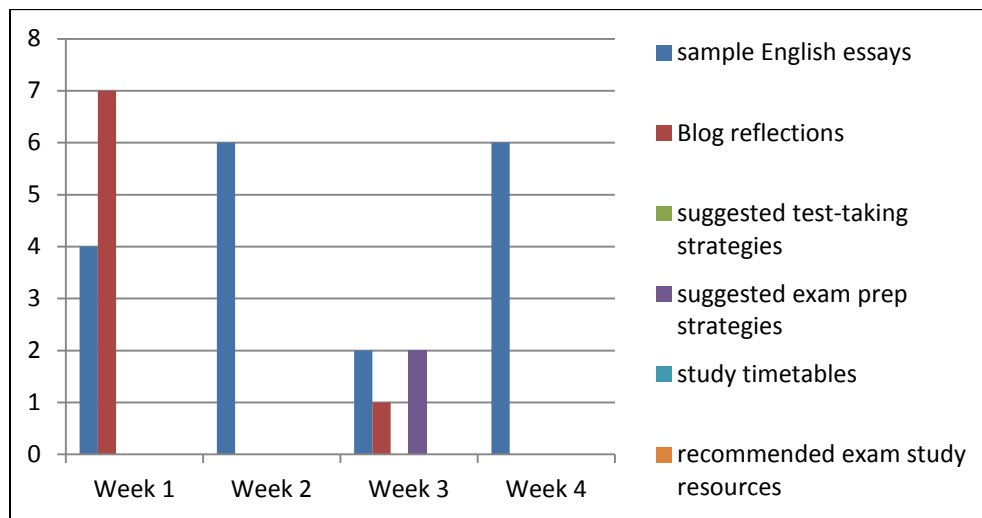
“I am not sure how this blog thing works but I am trying it anyway.

My name is Mary and I am from Trinidad. I want to sit and pass the

English exam. i left school early too look after my brothers and sisters

so I never finish school. I feel is my time now and I want to do it for me.”

Reflective postings like these in study participants’ blogs ceased after the first week and only reappeared minimally in week 3 of the study (see Figure 5).



*Figure 5: Weekly Production of Practice Artifacts in CaribExams Community*

Analyzing the types of practice artifacts posted during the 4 week study period, it was observed that study members expressed a distinct bias toward one particular type of practice artifact; they preferred to produce English essays. These English essays were produced consistently every week for the duration of the study. While invitations were extended in weekly broadcast emails for study members to produce artifacts such as recommended exam study strategies, exam test taking strategies and recommended supplemental study websites, 95 percent of participants did not accept these invitations. Participants produced only two artifacts in these categories over the 4 week period. Conversely, over the 4 week period, a total of 18 English

essays were produced. Of the three types of practice artifacts produced during the study, English essays were the most heavily represented artifact type (64%), see Table 14.

Table 14

*Weekly Production of Practice Artifacts in CaribExams*

Practice artifacts	Week 1	Week 2	Week 3	Week 4	Total
English Essays	4	6	2	6	18 (64%)
Blog reflections	7	0	1	0	8 (29%)
Suggested test-taking strategies	0	0	0	0	0
Suggested exam prep strategies	0	0	2	0	2 (7%)
Study timetables	0	0	0	0	0
Recommended exam study resources	0	0	0	0	0
Total	11	6	5	6	28 (100%)

In addition to increased production of practice artifacts, implementing community redesign strategies also resulted in increased communication and interaction between study members. For social learning theorists (Lave and Wenger, 1991, Hutchins, 1993), learning is facilitated by interaction between near peers in a Community of Practice. To facilitate interaction activities in the CaribExams community, four communication options were made available to study participants. The mechanisms made available for members' interactions included, (i) a comment capability which allowed members to write comments to each other's blog posts. Participants' blogs were the portfolios where study members were encouraged to collect their practice artifacts; (ii) a private messaging system to send private email messages to each other in the community website; (iii) a chat function which allowed study participants to send instant messages to each other when simultaneously online in the community website; (iv) discussion forums where they could create discussion topics and post comments to any open topic.

Study participants elected to use two of the available mechanisms; they used the comment function and the private messaging system. Study members commented on each others' reflective blog and practice artifact postings. While many comments did not receive responses, it was observed that limited instances of sustained comment exchanges took place. Comment exchanges took the form of conversations about essays and the members' abilities to write essays. These exchanges were categorized as members' interactions. Table 15 following is a sample of an interaction or sustained comment exchange about one member's production of a weekly essay.

Table 15.

*Sample of Comment Exchanges Between Study Participants Discussing a Practice Essay*

Date	Study participant	comment
11.16.2012	elladi:	this is my first ever short story I hope I am on the right track
11.16.2012	June joseph:	Good job elladi. This story began real interesting-like. However, you kind of got us, the readers, muddled up with your run-on sentences. You must also check your spelling. I saw somewhere you wanted to put "bought", instead you put "both" and I really had to read the line 3 times to understand what you were trying to say. I think you should have summarized the second paragraph. I don't think all that was necessary. Again it's my opinion, so I think Kathy will put you on the right track. The most important thing is that you tried! Nothing beats a trial but success! Keep on keeping on!
11.17.2012	elladi:	June your advice was so very helpful, davidc said the same thing thanks so much for ur help
11.18.2012	June joseph:	Elladi you are most welcome. You know we all learn from our mistakes and I think you are a very good sport. You will achieve alot in the future. I can tell! Reach for the sun if you fall you will be among stars!! lol your friend CJJ

Blog comments, which sometimes included exchanges like these, comprised fully 89 percent of all communications in the community (see Table 16). On the other hand,

communication between members using the private messaging system was not well developed at all. Only 11 percent of communication between members utilized this system.

Table 16

*Members' Weekly Communication in CaribExams Community*

Week	1	2	3	4	Total
Artifact comments	19	20	9	7	55 (89%)
Private messages	1	5	0	1	7 (11%)
Discussion forums	0	0	0	0	0
Chat conversations	0	0	0	0	0
Total	20 (32%)	25 (40%)	9 (15%)	8 (13%)	62 (100%)

**Self-identification.** Self-identification as a member of the community is an important indicator for assessing members' progress toward full participation in a Community of Practice. As members' participation increases and changes, they begin to assume more responsibility for the continuation of the practice, i.e., they make more commitments toward the production of practice artifacts, they increase their engagement and skill with practice tools and they begin to adopt the role of practice resource for other members in the community.

In pre-intervention interviews, study participants uniformly stated that they felt no connection or sense of self-identification with the CaribExams community itself or other members in the community. Implementation of redesign strategies in the CaribExams community did not change this. In post-redesign interviews, study participants maintained that they did not feel any sense of connection or self-identification with the CaribExams community or other participants (Appendix J). The following Table 17 is a sample of study participants' responses to a post-redesign interview question which asked them if they felt themselves to be a part of the CaribExams community.

Table 17.

*Sample of Study Participants Post-Redesign Interview Responses about Self-Identification as CaribExams Community Members*

Interview Question	Study Participants' Responses
Do you consider yourself to be part of CaribExams or feel a sense of connection to CaribExams in any way? To any of its members? Why do you think this is so?	<p><b>tburn</b> - No, I don't consider myself part of that community. I don't know</p> <p><b>diane</b> - No I do not feel connected to anybody. I am not there often enough</p> <p><b>archie</b> - No, I didn't really talk to anyone. I am not in contact with anyone from the website. No I am not a part of anything. I don't know</p> <p><b>caribblue49</b> - I wasn't in contact with anyone. No I am not a part of that community. I wasn't there often enough</p> <p>.</p> <p><b>davide</b> - No, I don't feel any sense of connection to anybody in the community.. Not sure why</p> <p><b>giad</b> - No I am not in contact with anybody there so I don't talk to anybody. Don't know why</p> <p><b>susieq</b>- Sorry no, I am not a part of that group. I don't have time to socialize online</p> <p><b>elladi</b> - No, I only go on to look for information so I don't talk to people much</p> <p><b>tgantz</b>- No I didn't advise anyone. I am not in contact with anyone, I don't see myself as a part of that community.</p> <p><b>June joseph</b> - I tried to talk to some of them but they really didn't respond. I am not in contact with anyone regularly. No I wouldn't say that I am a part of the community.</p>

These interview statements were supported by the qualitative nature of comments posted to members' blogs. In evaluating the quality of communications between participants in the CaribExams community, what stands out is the courteous distance which seems to typify the majority of comments made. Participants regularly commented on each other's written essays,

but, with the exception of a few participants, there were no follow-up comments. Study participants were supportive of and polite to each other in comments, but sustained comment exchanges or member interactions were rare.

One study member presented an interesting anomaly to the general responses and actions of other study members. On several occasions, study member *june joseph* offered practice advice to other study members. She commented favorably on the practice artifacts produced by other members and encouraged them to improve and revise their work. Her comments were usually very positive and directed at helping other members struggling with the community practice.

Yet, even this study member, when asked about her sense of self-identification in the CaribExams community, was somewhat negative and ambivalent in her response. June joseph said, “I tried to talk to some of them but they really didn’t respond. I am not in contact with anyone regularly. No I wouldn’t say that I am a part of the community” (Table 17).

This response seems to indicate that this aspect of LPP, the process of novice members’ self-identification with a Community of Practice requires the collaborative involvement of other community members. It appears that the quality of responses new members receive to overtures in a voluntary online community can influence whether they develop a sense of self-identification with that community. Based on study members’ responses in post-intervention interviews, it was clear that there was no process of collaborative interaction taking place in CaribExams which would promote members’ self-identification with the community. As a consequence, members were not self-identifying with the community, even when they were carrying out advanced community membership activities such as acting as a practice resource for other community members.



Research question two.

2. Using design strategies based on the social practice learning theory, what participation trajectories can be identified among CaribExams members?

The participation trajectories identified among the majority of CaribExams study members seemed to be moving from peripheral participation to transforming participation. However, these were weak and inconsistent trajectories that did not appear able to achieve full participation. There was also a single instance of a participation trajectory that seemed to move quickly toward full participation and then, just as quickly, begin to move *away from* full participation (Appendix J)

Data showed that, overall, members' participation in the CaribExams community increased after implementation of redesign strategies. However, in examining individual members' participation in CaribExams over the course of the study, one significant characteristic of their participation emerged: the high degree of variability in individual members' participation. With the exception of one study member - June Joseph - who consistently produced multiple practice artifacts every week over the 4 weeks of the study, there was no observable consistency in the majority of individual members' weekly production of practice artifacts (see Figure 6).

In addition to variability in members' weekly production of practice artifacts, there was also inconsistency in their communications. Members posted comments sporadically and many times did not respond to comments directed at them. This resulted in fewer instances of sustained member interactions between study participants (see Figure 7).

As a consequence of this inconsistency in both artifact production and communication between study members, the transforming participation trajectories of individual study members

did not mature into full participation during the study (see Figures 6 and 7). In a case that was outside the norm for the study, there appeared to be one instance of a trajectory away from full participation.

Of the 11 study members who were active participants in the CaribExams community, there was one member –june joseph - who consistently produced multiple practice artifacts each week and who initiated interactions with other members. In terms of artifact production - English essays - she was responsible for producing 39 percent of all English essays produced over the course of the 4 weeks of the study. She also exhibited positive responses on all indicators of deepening participation over the 4 weeks of the study. Yet, in examining her participation in CaribExams, it was possible to observe a negative trajectory in her communications with other study members. When a trend line was developed to map the direction of her community interactions, it was negative (see Figure 7).

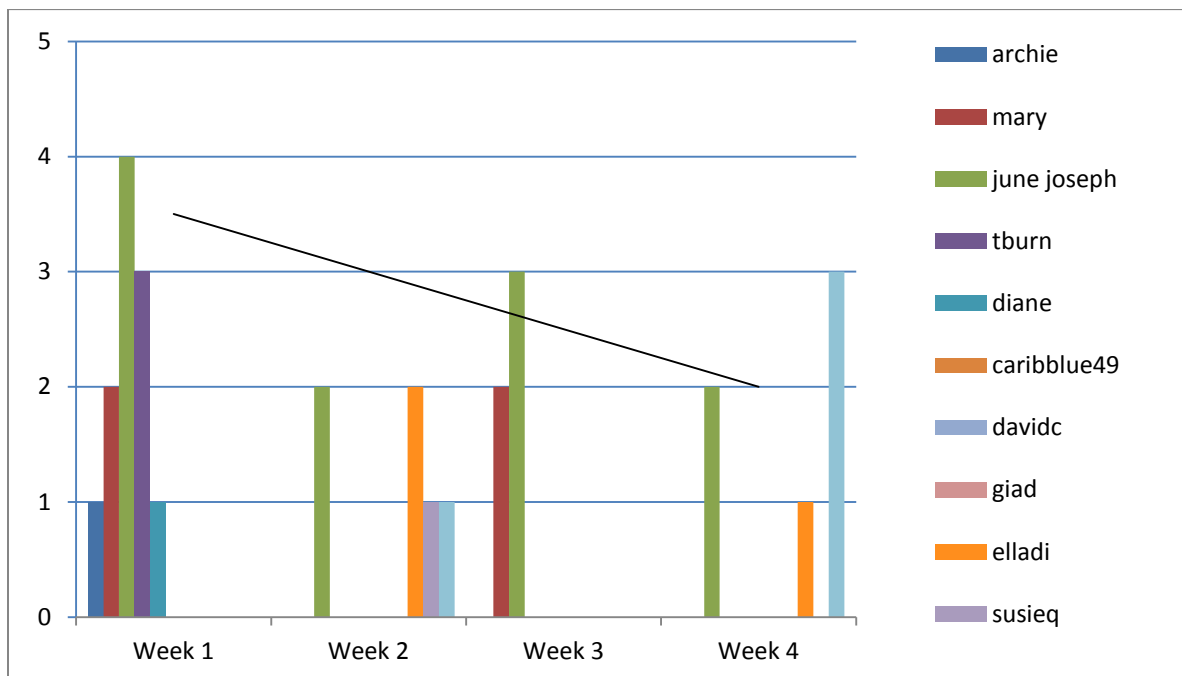
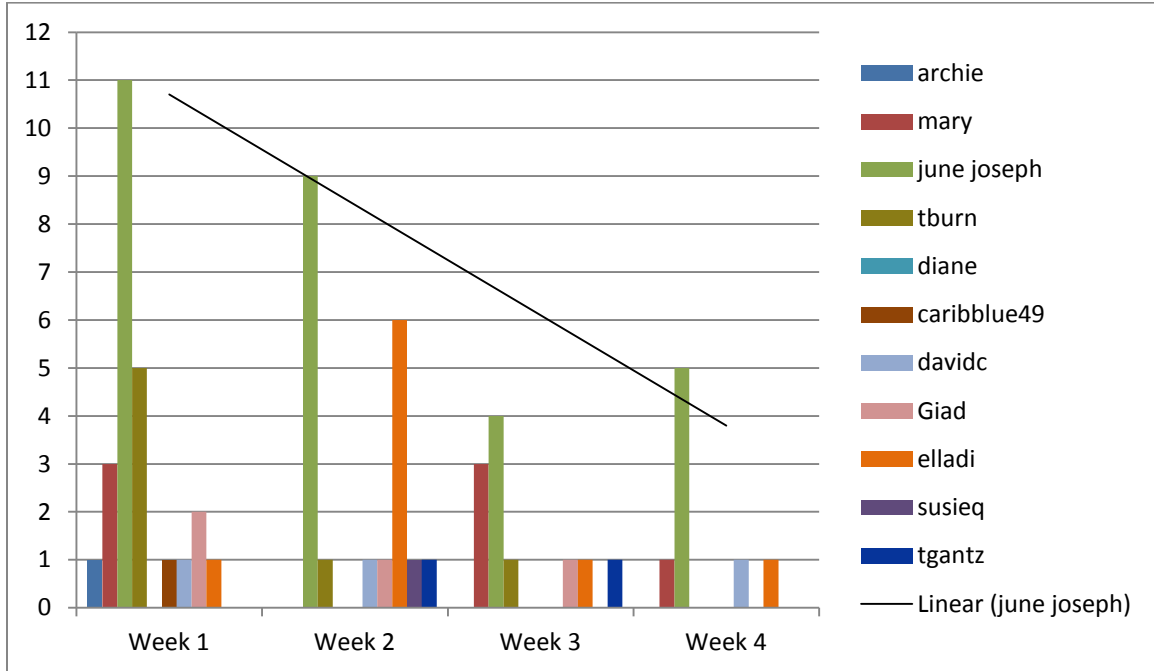


Figure 6: Aggregation of Study Members' Total Weekly Practice Artifact Production



*Figure 7: Study Participants Weekly Communications: Blog Comments & System Emails*

The fact was, after implementation of redesign strategies for 4 weeks, the majority of study members' participation trajectories were not well-developed and they did not appear able to move from a transforming participation phase to a full participation phase. One participation trajectory that moved quickly to full participation in the initial stages of the study appeared to be on a trajectory away from it by the end of the study.

Given that all study participants expressed a felt dilemma consistent with the practice of the community, also, given that in post-redesign implementation interviews, study participants continued to express that they perceived the practice of CaribExams as useful in preparing them for the CXC English exams, their irregular participation in the community practice was extremely puzzling.

Research question three.

3. What theory-grounded design principles promote full participation trajectories in voluntary online Communities of Practice?

The results for this third research question were linked directly to the results for the second research question. The results for research question two, “using design strategies based on the social practice learning theory, what participation trajectories can be identified among CaribExams members?” was the empirical foundation to be used to answer the third research question.

The results of research question two were that while implementation of redesign strategies based on generalized design principles from the social practice learning theory did improve most members’ participation levels and participation trajectories in the CaribExams community, they did not result in trajectories toward full participation. In the 4 weeks of the study, there was only one instance of a member whose participation trajectory matured toward full participation. Unfortunately, this member – June Joseph- did not sustain her full participation trajectory in the community. Her participation levels decreased and her participation trajectory became negative. That is, it trended away from full participation. These results had significant implications for research question three. Because a trajectory toward full participation was observable in only 1 out of 20 participants in the research study, this study was not well-placed to provide an unqualified, empirically validated answer to this third research question.

There were aspects of implemented redesign strategies that were moderately successful however: namely, the strategy of making the practice of online voluntary communities more transparent to novices. This redesign strategy resulted in novices recognizing the practice of the community, with them being able to state what is the practice of the community, and with their

increasing participation in the practice of the community. This redesign strategy can be traced back to two theory-grounded, design principles:

- (1) The practice of the community should be organized so that novices can have a broad overview of the whole practice;
- (2) Structured and articulated opportunities should be created for novices to regularly participate in the activities and tasks of the practice.

These theory-grounded design principles proved somewhat successful in promoting members' participation in the CaribExams community. After the redesign strategies were implemented, members were able to identify the community practice, whereas they were unable to do so before. Also, they were able to access clear and structured opportunities to participate in the ongoing practice. As a consequence of these, overall members' participation in the community practice increased from zero artifacts to 11 artifacts produced in the first week.

Unfortunately, this was the high point of artifact production as production fell in the second week and continued to fall for the remaining 2 weeks of the study. Individually, the trend line was toward decreasing weekly participation (Table 13). Since individually and collectively artifact production in CaribExams did not maintain a steadily increasing rate for the 4 weeks of the study, it cannot be claimed that there were trajectories toward full participation taking place in the community. And, consequently, it cannot be claimed that these two generalized design principles can promote full participation trajectories in voluntary online Communities of Practice.

Two other theory-grounded design principles which formed part of community redesign strategies but which were apparently unsuccessful in influencing members' participation were:

- (1) There should be alignment between the practice of the community and the felt dilemma of community members.
- (2) There should be alignment between the practices of a mature field and the practice of the immediate community

The redesign strategies that were derived from these design principle was to, (1) reorient the CaribExams community practice to ensure that it was aligned with the felt dilemma of CaribExams members and (2) reorient the CaribExams community practice so that it was aligned with the practice of sitting for the CXC English exam.

The first redesign strategy did not have a noticeable effect on members' participation levels or participation trajectories. As noted previously, 100 percent of study members, in interviews, expressed a felt dilemma of needing support in preparing for the CXC English exam; however, this view did not result in increases in participation levels by all members who articulated it. In fact, 9 (45%) study members who agreed that they possessed the felt dilemma, never participated in the community. As a consequence, it appears that aligning the online community practice with the felt dilemma of community members might be a necessary step in promoting community participation; however, it was not very useful as an indicator of deepening community participation.

With regard to aligning the community practice in CaribExams with the practice of the mature field that members are preparing for – sitting for the CXC English exams, study evidence suggests that this strategy, like the alignment strategy for members felt dilemma, was a necessary but insufficient step in promoting members' full participation in the CaribExams online community. It was also not a particularly useful as a metric for measuring changes in members' participation levels or trajectories.

Theory-grounded design principles –social learning theory design principles - which were the foundation for the redesign strategies implemented in the CaribExams community were able to influence, to some degree, the participation levels and trajectories among study participants. This influence resulted in weakly developed trajectories of participation among 50 percent of study members. In terms of the continuum of participation from peripheral through transforming to full participation, it appears that these community members' participation trajectories did not mature beyond the transforming participation stage.

In real terms this meant inconsistent production of practice artifacts by community members and limited communication and interactions between study members. While there were instances of sustained interactions between study members, they were not sufficient enough to represent part of a sustained trajectory. Given these results, this study was unable to make empirically validated assertions that any theory-grounded design principles based on a social practice learning theory promote full participation trajectories in voluntary online Communities of Practice.

### **Results Summary**

Of the 20 persons who signed up to participate in the research study, only 11 (55%) became active study participants. When the remaining 9 (45%) persons were interviewed in the post-redesign implementation period, they provided several reasons for their non-participation. These included a lack of time due to work and family responsibilities, poor internet connection and computer problems. These 9 individuals indicated that they were still experiencing the same felt dilemma of having to practice for and study for the CXC CSEC English exam that they expressed before the study began. They also stated that they still perceived the CaribExams

community as useful to them in resolving this dilemma; however, they were unable to take advantage of the opportunity it presented.

The 11 study participants who were active in the redesign project, also expressed the same felt dilemma; they too were practicing for and studying for the CXC CSEC English exam. The results of the study showed that while they increased their participation in the CaribExams community as a result of redesign strategies based on generalized design principles taken from the social practice learning theory, this increase was not significant or sustained over the 4 week study period. Study members' production of community practice artifacts increased after redesign strategies were implemented, so did their communication and interactions increase. However, these increases were inconsistent and did not constitute observable, sustained trajectories toward full participation by study members. There was one instance of an observable trajectory toward full participation by a study member, however this trajectory was not maintained and it eventually became a trajectory *away from* full participation in the CaribExams community.

Both in the production of community artifacts and in members' communication, study members expressed noticeable preferences. Members expressed a distinct preference for the production of English essays over the production of every other type of practice artifacts. 64 percent of all practice artifacts produced in the community during the study period consisted of English essays. Blog reflections were produced mainly in the first week of the study and exam study strategies, test-taking strategies, study and website recommendations were not produced in any noticeable quantity. In fact, there was only one study participant –june joseph-who produced this category of practice artifact. With respect to members' communication, it was observed that they had a preference for the use of blog comments as a communication mechanism.



The following chapter, chapter 5, discusses the significance of the results of this study and explores the opportunities they present for validated practice, further research and theory refinement.

## CHAPTER 5

### DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

#### Discussion

This developmental research study was initiated to investigate the impact of redesign strategies on members' participation levels and participation trajectories in the CaribExams online Community of Practice. These redesign strategies were based on design principles derived from social learning theory, design principles that were developed using a theory-grounded design approach. A second goal of this study was to empirically validate study design principles which could promote full participation trajectories in voluntary online Communities of Practice.

The study expected to identify in what ways and by how much redesign strategies influenced study members' participation in the community practice. It also expected to identify the types of participation trajectories members would exhibit as a result of the implemented redesign strategies. Finally, since these redesign strategies were instantiations of generalized design principles based on the social practice learning theory, the study results would validate the generalized design principles.

This chapter discusses results of the CaribExams redesign project, limitations of the study, implications of the study and conclusions. The chapter ends with recommendations for practice and further research on the topic. The conclusions presented in this chapter only relate to the CaribExams redesign project. The recommendations here are also based on the results of this project only, both therefore, are limited by the size and context of this research project. Despite this, conclusions and recommendations of this study can offer guidance to practitioners engaged in supporting voluntary online Communities of Practice and to other researchers who are focused on refining the Community of Practice concept and making it a more useful analytic tool.

The study began with a two problems. One of low member participation in an existing online Community of Practice – CaribExams - and a second one, a limited empirical base for the design of online Communities of Practice. While Lave and Wenger (1991) were responsible for developing the concept of Communities of Practice, they did not provide prescriptive guidelines for design or development within the context of these communities.

Much later, Wenger, along with other writers, did develop prescriptive design guidelines for cultivating Communities of Practice (Wenger et al (2002)). However, these design guidelines were based on a revised representation of the Community of Practice concept which saw it extracted from its position within social practice learning theory and its attributes completely reconfigured. As a consequence of this revision, the design guidelines proposed by Wenger et al (2002) were not particularly useful in designing from within a social practice learning theory framework. The Wenger et al (2002) design guidelines were also compromised by their recasting of the definition of the concept. Given the foregoing, and the fact that most current research on Communities of Practice utilizes the Wenger (1998) representation of the concept, the empirical base on which most Community of Practice designs stand, appears flawed.

A developmental research study was designed to address this issue. The study followed the stages in the developmental research cycle outlined by Richey and Klein (2007). There was an analysis of the CaribExams community to determine whether it met the required criteria to be considered a Community of Practice, according to the Lave and Wenger (1991) representation of the concept; it did not. As a result, this analysis phase was followed by a design phase in which redesign strategies were developed to modify the characteristics of the CaribExams Community of Practice so that they were more aligned with the characteristics of a Community of Practice as described by Lave and Wenger (1991) and Lave (2008). The method used to arrive at the design

changes was the theory grounded design approach advocated by Bednar, Cunningham, Duffy and Perry (1995). This method advocates the explicit use of theoretically derived principles and strategies as the basis for instructional design.

Developing the redesign strategies was based on the idea that the first prerequisite for increased participation in CaribExams was verifying that the online community possessed the characteristics of a Community of Practice as defined by Lave and Wenger (1991) and Lave (2008). To this end, the critical attributes of the Community of Practice concept were identified and validated in the research literature. These attributes were then used to generate generalized design principles for the development of Communities of Practice.

Following this, the generalized design principles were modified into context-specific design strategies which reflected the particular circumstances and practice of the CaribExams online community. This approach followed the recommendations by Gibbons (2003) that instructional designs should be situationally-relevant and reflect recognition of local design conditions and constraints. Once the contextualized redesign strategies were developed, they were then implemented following a dedicated plan. The goal was to transform the CaribExams community into a Community of Practice as conceived of by Lave and Wenger (1991).

Once the redesign strategies were developed, the next step was to devise implementation procedures that would see the CaribExams online community converted into a model Community of Practice. A plan was developed whereby implementation procedures were developed for every redesign strategy. The implementation procedures were the steps that were taken to ensure that the redesign strategies were accurately deployed. It was expected that these design changes would positively influence members' participation in the CaribExams Community of Practice.

The major redesign strategy in CaribExams as a consequence of this exercise was the complete revision of the community's practice. Prior to the redesign project, the practice in the CaribExams community was the development of multimedia learning resources for the CXC English exam. The implementation of the redesign strategies saw this community practice completely altered to become, preparing for the CXC English exam. This meant that the types of practice artifacts produced in the community changed from multimedia English tutorials to English essays, exam study strategies, test-taking strategies and other artifacts that members would normally produce in their practice of preparing for the CXC English exam. It also saw the conversion of members' blogs into artifact portfolios where members collected and archived their practice artifacts. It also saw the development of screen cast tutorials which explained the current practice of the CaribExams community. These redesigned changes meant that the practice of the CaribExams community were completely re-configured. The strategies were implemented and the results of the implementation process were collected and analyzed.

Given that the goal of the research study was to promote participation in the CaribExams online Community of Practice, the process for Legitimate Peripheral Participation (LPP) in Communities of Practice was identified in the research literature, observable *Indicators of Deepening Participation* (Table 4), were generated, and thematic codes were developed for data analysis. These indicators of deepening participation were grouped together to produce observable indicators or metrics for evaluating study members' participation trajectories. These indicators allowed study members' participation levels to be measured and the direction of their participation trajectories to be monitored. Participation trajectories exist along a continuum, for the purposes of this study however, community participation was evaluated with reference to three identified categories: peripheral, transforming or full participation. The redesign strategies

were implemented and members' participation was monitored for 4 weeks.

The study results were somewhat puzzling. Despite that the introduction and promotion of community practices consist with the practice of preparing for the CXC CSEC English exam, 9 people who signed up to participate in the study, never did. This meant that 45 percent of those people who signed up for the study logged into the website but never participated. They viewed practice artifacts in the online community, but did not sign up for any activities nor did they produce artifacts of any kind, e.g., comments, essays, suggestions on exam strategies or test taking tips. In post-intervention interviews, these study participants indicated that they were interested in participating in CaribExams practice activities but they were unable to do so because of factors beyond their control, e.g., problems with computers, lack of internet access and lack of time due to work and family responsibilities.

Eleven study participants or 55 percent of study members participated in community activities. They produced practice artifacts-English essays, blog reflections, suggested exam study strategies, test-taking strategies and recommended resource websites. They also communicated with each other by posting comments on other members' blogs; comments were usually related to weekly practice activities. There was an observable, yet inconsistent increase in study members' participation in the CaribExams community over the 4 week study period.

It was noteworthy that in terms of artifact production, community members exhibited a distinct bias toward the production of English essays. This type of artifact production dominated all others. As noted before, 64 percent of all artifacts produced over the 4 week period were English essays. Also noteworthy, was that the majority of communication between study members was about English essays that they produced. Communications were mainly congratulatory, with some questions about the methods used for essay construction.

One possible reason for study members' bias toward the production of English essays in the community may be that, culturally and historically, the production of this specific type of artifact - English essays- was perceived by study participants to be a more proximate practice to preparing for the CXC English exam than the production of other practice artifacts. This view is supported by socio-cultural researchers Beach (1999) and Black, Williams, Hernandez-Martinez, Davis, Pampaka and Wake (2010) who argue that while individuals engage in a range of activities in any situation, based on social, cultural and institutional forces, and their goals and developmental stage, people accord some activities greater significance than others.

These significant activities are termed 'leading' activities because of their relative dominance among all activities individuals' are engaged in at any one time. Based on this analysis, the production of English essays was apparently viewed as the leading activity in the CaribExams community by the research participants. The emergence of writing English essays as the leading activity in the CaribExams Community of Practice may be traced to the fact that it is the required activity in the CXC English exam and the activity in which members engage when they sit the exam. Therefore, this activity is leading because it is most consistent with research participants' goals.

Even though participation increased among these study members, it was inconsistent. Of the 3 categories of deepening participation used to analyze study members participation in this study, the majority of study members responded to only one to any significant degree. Having a felt dilemma consistent with the practice of the community influenced the participation levels and participation trajectories of only 55 percent of study members. Also, overall study members did not develop any sense of self-identification with the CaribExams community as a result of the redesign project. The only category of deepening participation which seemed to have an

impact on study members' participation level was their perception of the community practice. Even though study members perception of the community practice did appear to contribute to an increase in their community participation, this participation was inconsistent. Of the three trajectory phases of participation: peripheral, transforming and fully 95 percent of study members displayed transforming trajectories of participation and even these were not very well-developed. They did not produce practice artifacts consistently over the 4 week period nor did they engage in sustained communication or interactions with other community members.

These results contradicted expectations for study members' participation in the community. Given that all twenty study participants in pre-redesign interviews expressed a commonly felt dilemma (Beach 1995; Cain, 1991; de la Rocha, 1985, Lave, 1997) of needing to study for and prepare for the CXC CSEC English exam, the expectation was that they would exhibit strong trajectories toward full participation in the new CaribExams community practice; this was not so.

In interviews after the redesign strategies were implemented, study members stated that the practice of the CaribExams community was useful in helping them to prepare for the CXC English exam. Despite this perception that their participation in the practice of the CaribExams community would assist them, 45 percent of study members did not participate and 55 percent who did participate, did so sporadically. It appears that despite the implementation of community redesign strategies designed to reproduce offline exam preparation practices, study participants experience of the community did not encourage them to significantly increase their participation in the CaribExams community practice.

Several explanations have been considered to account for this weak participation. One possible explanation for members' inconsistent participation in the new community practice is



that the study members' approach to the CXC English exam preparation practice online in CaribExams is a reproduction of their offline CXC English exam preparation practice. So, while it may appear that their participation in the community practice is weak and inconsistent relative to expectations for community participation and in relation to the full participation trajectory of June Joseph, it may be that the transforming participation trajectory of the majority of study members in CaribExams is consistent with their offline participation trajectory in the practice preparing for the CXC English exam.

Hunter (2002) observed in her study of an online professional development Community of Practice, that the culture of the schools from which teachers came was a major obstacle to their participation in an online professional development Community of Practice. She went on to assert that the culture and practices of online Communities of Practice are determined by the local practices which operate in the offline Communities from which members originate. Any changes desired for online Communities of Practice, she states, must first be promoted within the local communities from which online Community of Practice members come. This view that members' participation trajectories in online Communities of Practice is influenced by the originating community from which they come has been supported by other studies. Cobb, Stephan, McClain & Gravemeijer (2001) and Volman and ten Dam (2007) all observe that a failure to take account of the norms of participation in other - maybe leading - communities to which members belong, can result in mistaken or limited understandings about their participation in target Communities of Practice.

Another possible explanation is that changing the location of the practice, preparing for the CXC English exam, resulted in a change in the practice itself. Members of the study group may have found themselves engaging in an English exam preparation practice that was specific

to the online location of the CaribExams community and different from the English exam preparation practice that they are familiar with offline. This potential explanation is supported by empirical studies which observe that community practices change when the context of the practice is changed. Säljö and Wyndham (1996) observed this quite early and their research which was supported by several other studies (Brown and Duguid, 1994; Cobb et al, 2001).

### **Conclusions**

The outcome of this developmental research study was somewhat confounding. Despite the fact that study participants, both before and after the study, expressed a felt dilemma of needing to prepare for the CXC English exam, with one exception, they did not utilize the opportunities presented to them in the CaribExams Community of Practice to prepare for the CXC English exam. Despite the fact that research participants stated before - and after - the study - that they believed the practice of the CaribExams community was useful in preparing for the English exam, many of them nevertheless did not significantly increase their participation in the community. One conclusion that may be drawn from this is that a commonly felt dilemma does not necessarily propel members to act in a Community of Practice, and, while it may be a necessary prerequisite for participation in a Community of Practice, it is not sufficient to motivate participation.

A second conclusion is this: for study members who participated in the community and who were confronted with multiple possible activities in CaribExams, they appeared to assign a hierarchy of importance among the potential community activities. That is, they determined, for themselves, what were leading activities in the community and, when given the opportunity, they proceeded to engage in leading activities, almost to the exclusion of other potential activities in the community (Black et al, 2010). CaribExams community members engaged in the production

of English essays almost to the exclusion of other community activities. Based on observations, it seems reasonable to conclude that participants' determination of what constitutes a leading activity in a Community of Practice is connected to the degree which the activity is aligned with the practice of a leading, overlapping Community of Practice.

### **Limitations of the study**

There were limitations to this study. First, the study was only focused on one case of a specific online Community of Practice. This limited the statistical generalizability of the study results. This limitation was exacerbated by the fact that the sample size in the study consisted of 20 research participants. Because of this, results of this study are best positioned to contribute to refinements in analytic generalizations about the Community of Practice *concept*. It is less useful for efforts to develop behavior models for members of online voluntary Communities of Practice (Miles & Huberman, 1994; Yin, 2008). This study does, however, contribute to the development of an empirical base for future large scale, statistical studies of online voluntary Communities of Practice.

A second limitation of the study was the scarcity of senior CaribExams community members to reproduce the diversified layers of generational membership attribute of the Community of Practice concept. While troubling, this situation accurately reproduced normal activity in the CaribExams Community of Practice: CaribExams members' participation diminishes, and for some, disappears, after they sit for the CXC English exam. Because of this, there is a high turnover in community membership, a lack of senior community members to produce exemplary practice artifacts and to model tool use, as well as a lack of support for members' participation trajectories.

One consequence of this situation in the study was that the researcher was drafted into the role of senior community member. As a senior community member, she responded to study participants' requests for assistance and reinforcement, and, in order to maintain the study for the duration, she moved from being a non-participant observer in the study to being a participating community member. She became a participant observer in the study.

### **Implications of the study**

There are several implications that emerge from this study. One implication is this: The utility and relevance of an online Community of Practice to members is influenced by the degree to which the practice of the online community facilitates members' participation in a mature practice field. That is, the practice of an online Community of Practice derives its significance for novices based on the access it affords them to a mature practice.

Another implication which follows from this is that members' participation in online Communities of Practice may be influenced by their participation in related offline Communities of Practice to which they belong. If members of an online Community of Practice belong to leading organizations and institutions offline, members' participation trajectories in online Communities of Practice will display the same participation trajectories and culture of participation as those in the leading organizations and institutions, with which they are affiliated (Cob et al, 2001, Hunter, 2002 Volman and ten Dam, 2007). That is, members' participation trajectories in online Communities of Practice will likely be a reproduction of the underlying culture of participation and common participation trajectories in leading local or offline institutions and organizations. For example, online Communities of Practice developed by established organizations or institutions will reflect the participation culture of the originating organizations.

A third implication of this study is that the practice of any Community of Practice may not be constant across locations. This implication stems from the study suggestion that transferring a community practice online may result in unintended consequences for the practice and for participation by community members.

A fourth implication of this study is that the presence of senior members at various stages of expertise in community practice is important for the development of novices' self-identification with an online Community of Practice. Not only is the presence of senior members at various stages of expertise in the practice important, these senior members must also be willing to communicate and interact with novices over extended periods of time. These extended interactions creates opportunities for senior members to model their own self-identification with the community and, in doing so, preview for novices, a pathway or trajectory for their own nascent community self-identification.

A fifth implication of this study is that leading activities for novices in an online community are self- determined. Active participants in online Communities of Practice determine for themselves what constitutes leading or significant activities in the online community. They assign a hierarchy of importance among potential community activities and, when given the opportunity, proceed to engage almost primarily in leading activities. The determination of what constitutes a leading activity appears to be based on the degree to which community activities are aligned with the practice in the leading overlapping mature practice field to which community members aspire (Lave and Wenger,1991). It also appears that these leading overlapping mature practice fields can operate on the internet as well as off the internet.

### **Recommendations for practice**

There are several recommendations for designing for voluntary online Communities of Practice that emerge from this study. One recommendation is that the practice of the online Community of Practice should be closely aligned with the practice of the mature practice field to which its members aspire. Every effort should be made to identify the participation culture of the mature practice field associated with the Community of Practice. This is important so that in designing support for community members' participation trajectories, it will be fully informed by the nature of participation trajectories that are operational in the mature practice field. Also, this is important so that the expectations for participation in the Community of Practice are consistent with the participation culture of the mature practice field.

A second recommendation is that there should be efforts to identify the leading activity in the practice. It may be difficult to tease out the leading activity in a community practice online, given that there are multiple activity streams connected with any community practice. It is necessary to do this however, so that adequate design and development resources can be allocated to supporting and reproducing that specific activity. Given that the leading activity is just that, leading, it is recommended that in allocating resources for designing for Communities of Practice, this specific activity is identified and given a greater share of attention.

A third recommendation is, that in designing for online Communities of Practice, there needs to be a conscious effort to make the practice of the community as transparent as possible for novices; to provide them with an overview of the practice that allows them to see its entirety. At the same time, structured opportunities should be created whereby novices can participate in the practice and, at the same time perceive a pathway toward full participation in the practice.

A fourth recommendation is that memberships in online Communities of Practice should include community members at varying levels of seniority and expertise. Much more than mere presence is required of these advanced community members. They would need to actively engage in communication and interactions with novices and, in doing so, they model their self-identification with the community and promote novices' own developing self-identification. The existence of a community practice and structured opportunities to engage in the practice are insufficient to promote novices' self-identification with an online Community of Practice.

### **Recommendations for future research**

In order to narrow the range of alternate explanations for the unexpected participation trajectories of members in voluntary online Communities of Practice, it is recommended that other studies be conducted in which comparative analyses are made of members' participation trajectories and participation cultures in originating local organizations and related online Communities of Practice. This would help to determine what, if any, influence offline organizational membership has on community members' online participation levels and trajectories.

It is also suggested that comparative analyses be conducted of the participation trajectories and participation cultures in mature practice fields and related voluntary online Communities of Practice. This study would help clarify whether members' participation levels and participation trajectories in voluntary online Communities of Practice are a reflection of participation practices in related mature practice fields.

It is also recommended that analyses be conducted to compare members' participation levels and participation trajectories in the same practice in both online and offline settings. This type of study would serve to determine whether members' participation practices change as a

result of change in location of the practice. These future studies should conduct these comparative studies to determine whether there are noticeable differences in online community members' participation levels and participation trajectories based on members' affiliation, location or traditions of the mature practice.

The development and maintenance of online Communities of Practice has been a stated goal of many institutions, corporations, businesses, agencies, formal and informal groups. For educational institutions, the major purpose of these online communities has been to facilitate learning by community members. In many instances, community members' cognitive learning was assessed after participation in these communities and individual results were used to ascribe failure or success to the online Community of Practice itself. This study took a completely different approach. In this study, learning was not defined as, nor measured as, cognitive changes in community members. Rather, indicators of learning were community members' quantitative and qualitative changes in participation and their self-identification with the community. Using this approach, analysis of the study data suggests that there was limited learning taking place in the CaribExams Community of Practice.



APPENDIX A:

AN INVITATION TO ALL CARIBEXAMS.ORG MEMBERS!

Research Volunteers wanted

Are you preparing to sit the CXC CSEC English A exam?

You are invited to participate in a CaribExams.org community redesign research study!

I am looking for 20 CaribExams.org members to participate in a 4 week study on how re-designing the CaribExams.org community affects members' participation

Who: adults, 18-99 years who are members of CaribExams.org

What: Over a four week period, you will be invited to participate in the following activities: Forum discussions, Blog writing, instant messaging, practicing English essay writing, making peer comments, suggestions, ratings, and internet searches. You will be interviewed by telephone twice: once at the start of the study and once at the end of the study. The telephone interviews will last approximately 30 minutes.

Benefits: You will benefit from this study by having a hopefully improved CaribExams.org community experience.

Where: The study will take place online in CaribExams.org. Only the telephone interviews will take place outside of CaribExams.org.

Contact: Research Investigator at 313-638-9546 or [kdaniel@caribexams.org](mailto:kdaniel@caribexams.org) or private message "kathy" in caribexams.org

If you are certain you wish to participate in the study, [please follow this link](#) to be taken to the information and consent sheet for the study

Research Investigator: Kathy-ann Daniel-Gittens M.Ed.

Wayne State University

APPENDIX B  
INFORMED CONSENT FORM

Title of Study: Practice as Pedagogy: Learning through  
Participation in the CaribExams Online Community of Practice

Principal Investigator (PI): Kathy-ann Daniel-Gittens  
Instructional Technology  
Wayne State University School of Education  
313-638-9546

**Purpose:**

In an effort to improve the online community experience in CaribExams.org, You are being asked to participate in a research study in the Community. The purpose of the research study is to investigate the influence of changes CaribExams online community on members' participation in the community. You are being invited to participate because you are a member of the CaribExams community and because you are over 18 years of age. This study is being conducted at Wayne State University.

**Study Procedures:**

You will be invited to participate in weekly activities of the CaribExams community over a 4 week period. You will be asked to write English essays, critique the English essays written by other members, conducting internet searches, develop commonly asked English exam questions and answers, maintain a personal blog and write postings to the community discussion forums all on a weekly basis.

You will also be asked to participate in two audio-taped telephone interview sessions; one will take place before the changes are implemented in the CaribExams community and one will take place at the end of the 4 week period. The telephone interviews will ask you about your perceptions of the community before and after the changes. You will also be asked what you think/feel about those changes and your recommendations for the community. The telephone interviews will be approximately 30 minutes each and audio-taped. You have the option of refusing to participate in all or some of the online community activities and of refusing to answer any questions that you wish.

**Benefits:** As a participant in this research study, there may be no direct benefit to you, however information from this study may benefit other people now or in the future.

**Risks:** By taking part in this study, you may experience the following risks: there is a minor risk that your website username and phone number may not remain confidential.

**Costs:** There will be no costs to you for participation in this research study.

**Compensation:** You will not be paid for taking part in this research study. Upon completion of the study, you will have the opportunity to enter a drawing for one of 5 USD \$50.00 Visa gift cards.

**Confidentiality:** Information in the research study record will be kept confidential. You will be identified only by your website username. There will be a master list that links your website username with the telephone number used to contact you for interviews. To preserve the confidentiality of this information, the list will be stored on a password-protected computer and will be permanently destroyed within 30 days of the end of the study

**Voluntary Participation /Withdrawal:**

Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. You are free to not participate in some or any online community activities Your decision will not change any present or future relationships with Wayne State University or its affiliates.

**Questions:**

If you have any questions about this study now or in the future, you may contact Kathy-ann Daniel-Gittens at the following phone number 313-638-9546. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may.

1. Are you planning to sit the CXC CSEC English A exam soon?

Yes      No

2. Are you over 18 years of age?

Yes                  No

3. Will you have daily access to a computer and the internet for the 4 weeks of the research study?

Yes                  No

4. In what Caribbean island are you located?

5. Please provide your phone contact number (including country code) xxx-xxx-xxxx

6. What CaribExams username?

If you do not have a CaribExams username already, what username would you like to use?  
(An account will be created for you in CaribExams.org using this name)

7. If you are not an existing CaribExams member, please provide an email address to set up your website account.

8. Signature: (initials)

## APPENDIX C:

## PRE-INTERVENTION INTERVIEW PROTOCOL

Date:

Time:

**A. Background**

1. How far in the future do you plan to sit the CXC CSEC English exam?
2. Do you now attend public or private classes to help you prepare for the exams?
3. How long have you been using the internet?

More than 6 months \_\_\_\_\_

More than 1 year \_\_\_\_\_

More than 2 years \_\_\_\_\_

4. What are your main goals when you go on the internet
5. How often do you use social media e.g. facebook, twitter, online discussion forums (apart from CaribExams) e.g. topix?

More than once a week \_\_\_\_\_

At least once a week \_\_\_\_\_

Once a month \_\_\_\_\_

**B. Felt' dilemma**

1. What needs/goals do you have in preparing for the CXC English exam?
2. Do you feel that being a member of CaribExams helps you to meet those needs/goals? Why/Why not?
3. What made you decide to join CaribExams?

**C. Perceived community practice:**

1. What do you believe is the goal/purpose of CaribExams?
2. What do you see as the major members' activities taking place in CaribExams?

**D Participation trajectory**

1. Do you take part in the activities you see going on in CaribExams? Why/Why not?
2. What type of activities would encourage you to participate more in CaribExams? Why?

**E. Self- identification**

1. Do you consider yourself to be part of CaribExams? Do you feel a sense of connection with the CaribExams community? With any of its members? Why do you think that is?
2. Do you feel a sense of connection with any online group/website? Without saying which ones, can you say what makes you feel like you are part of this online group/website?

APPENDIX D:  
POST-INTERVENTION INTERVIEW PROTOCOL

Date:

Time:

**A. Felt' dilemma**

1. Do you feel that taking part in the new activities in CaribExams helps to meet your needs in preparing for the CXC English exam? If not, why not?

**B. Perceived community practice:**

1. Have you noticed any changes in the activities taking place in CaribExams? If so, what changes have you noticed?
2. What are the activities taking place in the CaribExams community at present?

**C Participation trajectory**

1. Did you take part in the new activities in CaribExams? Why? Why not?
2. If you took part, how did you feel about taking part in the new activities in CaribExams?
3. How often do you post to the blogs wikis and discussion forums?
4. How comfortable are you posting to the blogs, wikis, and discussion forums?
5. Will you continue to take part in the new activities in CaribExams? Why? Why not?

**D. Self- identification**

1. Have you been able to advise anyone else in CaribExams about its activities e.g. what to do, or how to do it?
2. How many community members are you in contact with regularly? (At least once a week or more than once a week)
3. Do you consider yourself to be part of CaribExams or feel a sense of connection to CaribExams in any way? To any of its members? Why do you think this is so?

APPENDIX E:  
THEMATIC CODING SCHEME

1. 'Felt' dilemma
  - 1.1 Perceive community participation as unrelated to solving a problem that they have
  - 1.2 Perceive community participation as solving a problem that they have
  - 1.3 Perceive community participation as important to solving a problem that they have
2. Perceived community practice
  - 2.1. comprehends the practice taking place in the community
  - 2.2. values the practice taking place
  - 2.3. Engages in "improvised" practices;
3. Participation trajectory
  - 3.1. Observes the production of practice artifacts
  - 3.2. Produces "improvised" artifacts of practice
  - 3.3. Increased engagement with the tools of practice
  - 3.4. Assumption of greater responsibility for the completion the activities and/or tasks of practice.
  - 3.5. Increased adoption of the role of "practice resource" for newer novices
4. Self-identification
  - 4.1. Does not communicate or interact with other members in the community
  - 4.2 Communicates with other members in the community
  - 4.3. Engages in sustained interactions with other members in the community



APPENDIX F:  
WEEK 1: CALENDAR POSTED TO THE FRONT PAGE OF THE  
CARIBEXAMS WEBSITE COMMUNITY

**CaribExams Research study**

**Week 1 essay activities**

The weekly **essay activities** for week 1 are listed below. Please feel free to choose any **one** essay and complete it by the end of the week - Saturday 10th November, 2012 at midnight.

Your essay will be graded 1-6 and you will receive feedback on your essay, giving you tips to improve your essay writing.

These essay questions are **all** past CXC CSEC English A exam questions.

You are asked to post your completed essay to your personal blog.

If you do not know how to post to your blog, you can see how to do it here.

**Week 1 essays**

**Summary question**

Section 1 CXC CSEC English A exam - Compulsory summary question.

You weekly summary question:

Directions at the start of the section: **Read carefully the following passage and then write a summary of it.**

**Your summary must be in continuous prose, in paragraph form and it must not be more than 120 words in length. Only the first 120 words of your answer will be read and assessed.**

Since the beginning of civilization, they have served as marks of identification, spiritual protection and decoration. Now at the cusp of another millennium, tattoos and other varieties of body markings are resurfacing as a popular form of individual self expression.

Tattoos are timeless and can be unique as the bearers they adorn, They don't fade away like favourite t-shirts, or get lost or broken like school rings. They stay with you forever, until death. They become a part of you from the day you sit in the artist's chair, etching your emotions alongside the needle's sting, transforming an instant of your life into a symbol for the world to see.

Tattoos and other body markings arrived in the Caribbean with African slaves and indentured workers from China and India. They were sometimes the only permanent keepsakes of peoples snatched from their ancestral places. The Caribbean's original Amerindian inhabitants also used tattoos to mark spiritual milestones. The Taino of the northern Caribbean Islands, for instance, used vegetable dyes to affix images of their guardians onto their skin. These images also indicated an individual's lineage, or his or her social position. Each tattoo was both a

personal history book and a mark of belonging.

Over the centuries, however, tattoos and other forms of bodily adornment have mutated, exchanging religious and cultural significance for individualist associations. Sometimes that mark of individuality has been confused with rebellion and non-conformity, often alluding to a stain of bad character. Tattoo-wearers have seem wild, dangerous, even just plain bad.

But today, tattoos have come full circle. Celebrities, writers, lawyers, housewives, all proudly display their marks of rebellion. An entirely new perception of the art of tattooing has arisen, which is more than just a preoccupation with style. This re-discovered form of expression has spawned an entire sub-culture of individuals among us. They carry this common bond of distinction through their daily routines. Via the images on their forearms, shoulders, ankles, or torsos, they connect to each other, announcing to the world it is OK to be unique and different.

**30 marks**

Here are summary tutorials to help you write your own summary.

Please feel free to review and comment on these tutorials.

### **Descriptive essay question**

Section 3 CXC CSEC English A exam - Descriptive or short story essay question

Your weekly descriptive essay question

Directions at the start of the section: **Your answer in this section should be approximately 400 to 450 words in length.**

**You MUST write in Standard English. However, dialect may be used in conversation.**

**Question:** Today was the day that we were going to play against BV High School. This would decide once and for all who was the better team. **Describe** the scene just before the match started including the attitudes of both teams and those of the spectators.

**35 marks**

Here are descriptive essay writing tutorials to help you write your descriptive essay. Please feel free to review and comment on these tutorials.

### **Short story essay question**

Section 3 CXC CSEC English A exam - Descriptive or short story essay question

Your weekly short story essay question

Directions at the start of the section: **Your answer in this section should be approximately 400 to 450 words in length.**

**You MUST write in Standard English. However, dialect may be used in conversation.**

**Note:** CXC suggests spending no more than **45 minutes** to answer the short story question on Paper 2 of the English A exam.

**Question:** Write a story which leads up to the following ending:

"To this day, people passing through Coconut Grove still stop to ask for Waspie."

**35 marks**

Here are short story writing tutorials to help you write your short story.

Please feel free to review and comment on these tutorials.

Here is the short story that won the CXC CSEC English short story award in 2001. This essay is an example of the type of short story writing that CXC values.

### **Persuasive essay question**

Section 4 CXC CSEC English A exam - persuasive/argumentative essay

Directions at the start of the section: **Your answer in this section should be approximately 250 to 300 words in length.**

**You MUST write in Standard English.**

**Question:** "Pop music and dance on display in the Caribbean today are corrupting the youth and making them irresponsible."

Write an essay giving your views on this statement.

**35 marks**

Here are persuasive essay writing tutorials to help you write your persuasive essay.

Please feel free to review and comment on these tutorials.

APPENDIX G:  
WEEK 1: WEEKLY BROADCAST EMAIL SENT OUT TO STUDY PARTICIPANTS

Kathy has sent you a group e-mail from [www.caribexams.org](http://www.caribexams.org).

Greetings CaribExams study participants!

This email newsletter is to let you know that the weekly activity for week 1 of our project was posted in the [www.CaribExams.org](http://www.CaribExams.org) website yesterday. For this activity, you are to choose **one** past CXC CSEC English exam essay and complete it by the end of the week.

Your English essay answers help you prepare for the CXC CSEC English exam and they also become part of the essay archive of [www.CaribExams.org](http://www.CaribExams.org)

You can get more information on the essay activity by logging into

<http://www.caribexams.org/node/1838/>

In addition to the weekly activity, at the same link, you will find tutorial resources -video clips- to guide you as you work on the activity. You are also encouraged to comment on and review these tutorials.

If you have any questions, please feel free to email me or send me a private message in [www.caribexams.org](http://www.caribexams.org)

Looking forward to reading your essays!

Kathy

APPENDIX H:  
WEEK 3 CALENDAR POSTED TO THE FRONT PAGE OF THE  
CARIBEXAMS WEBSITE COMMUNITY

**CaribExams Research study**

**Week 3 activities**

The weekly **activities** for week 3 are listed below. Please feel free to choose any **one** activity and complete it by the end of the week - Saturday 24th November, 2012 at midnight.

There are both essay activities and exam prep activities where you give your advice on how to prepare for exams.

If you decide to do an essay, your essay will be graded 1-6 and you will receive feedback on your essay, giving you tips to improve your essay writing.

If you decide to blog on how to prepare for the English exam, you will also receive feedback in the form of comments.

The essay questions are **all** past CXC CSEC English A exam questions.

You are asked to post your exam preparation activities and/or completed essay to your personal blog.

If you do not know how to post to your blog, you can see how to do it here.

**Week 3 exam prep activities**

1) What advice do you have for people studying for the CXC CSEC English A exam? What would you tell them they need to do to help them study for the exam? Please write your thoughts/suggestions about this in your blog.

2) Do you have any interesting suggestions about how to "handle yourself" when you arrive in the CSEC English exam room? For example, any ideas on how to keep calm or how to make sure you remember all your points or ideas? Please blog about it and tell us.

1) What advice do you have for people studying for the CXC CSEC English A exam? What would you tell them they need to do to help them study for the exam? Please write your thoughts/suggestions about this in your blog.

2) Do you have any interesting suggestions about how to "handle yourself" when you arrive in the CSEC English exam room? For example, any ideas on how to keep calm or how to make sure you remember all your points or ideas? [Please blog about it and tell us.](#)

### Week 3 essays

#### Summary question

Section 1 CXC CSEC English A exam - Compulsory summary question.

You weekly summary question:

Directions at the start of the section:

**Summarize what the what the writer says about the Workers' Union in not more than 110 words.**

Sometimes when social history is recorded it is often distorted to suit not its historical truth but present day circumstances. However, there is no need for this fear when accounting for the Workers' Union. The truth is, as an organization it has remained true to its founding principles. Uppermost in the minds of its founders were principles that still live today in the hearts of all its members.

The seventies was in fact a period of change, a period of revolt against the old order, a period when the entire society questioned itself. A mood of militancy pervaded the working class and bank workers were not left out. The 1970's (even in the 1960's the militancy of the youth and workers was manifested in a number of ways) were exciting times to say the least. The University was alive with debate, discussions and ideas. Political parties were formed and they created powerful stirrings within society. The social crisis, the demand for change of the old status quo, the international issues, all had their influences. It was in the period that the Workers' Union was born.

Today, the Workers' Union represents many workers in over sixty companies including professional employees at prestigious financial institutions. We are now the recognized representatives for workers in the financial sector as well as in research organizations, that has now become an institution.

#### 30 marks

Here are summary tutorials to help you write your own summary.

### **Descriptive essay question**

Section 3 CXC CSEC English A exam - Descriptive or short story essay question

Your weekly descriptive essay question

Directions at the start of the section: **Your answer in this section should be approximately 400 to 450 words in length.**

**You MUST write in Standard English. However, dialect may be used in conversation.**

#### **Question:**

As he walked down the main street of the village where his grandparents lived he felt like he was in another country.

**Describe** what he saw and his thoughts and feeling

**35 marks**

Here are descriptive essay writing tutorials to help you write your descriptive essay.

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### **Short story essay question**

Section 3 CXC CSEC English A exam - Descriptive or short story essay question

Your weekly short story essay question

Directions at the start of the section: **Your answer in this section should be approximately 400 to 450 words in length.**

**You MUST write in Standard English. However, dialect may be used in conversation.**

**Note:** CXC suggests spending no more than **45 minutes** to answer the short story question on Paper 2 of the English A exam.

**Question:** Write a story entitled: "The Dream That Came True."

**35 marks**

Here are short story writing tutorials to help you write your short story.

Here is the short story that won the CXC short story award in 2003

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**Persuasive essay question**

Section 4 CXC CSEC English A exam - persuasive/argumentative essay

Directions at the start of the section: **Your answer in this section should be approximately 250 to 300 words in length.**

**You MUST write in Standard English.**

**Question:** Write an article to the local newspaper expressing your concern about the high rate of traffic accidents in your country. Suggest three measures which would help to reduce this high rate of accidents.

**35 marks**

Here are persuasive essay writing tutorials to help you write your persuasive essay.



APPENDIX I:  
BROADCAST EMAIL SENT OUT FOURTH WEEK OF THE STUDY

Greetings study participants!

This is the 4th and final week of this research project.

I have posted the list of activities for this week to the front page of the CaribExams website community.

Please review the activities and select the ones which you wish to complete. You have the entire week - until 1st December, 2012 - to complete the activities. You may elect to do more than one activity if you wish.

I encourage everyone to participate in the community activities for the week. If you do not wish to write essays, you can still comment on the essays written by other participants and give exam study suggestions/advice.

Some people have taken the opportunity to participate in study activities so far and I congratulate them.

At the end of this week I will need to interview everyone by telephone again. I ask that you email me to let me know what day and time will be best to call you. The interview will be short and will only take up 15 to 20 minutes of your time. If I do not receive an email, I will still attempt to contact you by phone for the interview

If you have any questions or concerns, please email me and I will attempt to resolve them.

Best,

Kathy

APPENDIX J:  
DATA ANALYSIS MATRIX (SAMPLE)

Thematic code	Peripheral Participation	Transforming Participation	Full Participation
'Felt' dilemma	<p><b>Pre-intervention interview data</b></p> <p><b>june joseph-</b> I need to study more for exams</p> <p><b>elladi</b> - I have no idea of the whole process of preparing for English exam, I have never done it before</p> <p><b>dauidc-</b> I need to study through the internet and read the textbook</p> <p><b>archie-</b>I have to start studying somewhere and it is a good choice to make</p> <p><b>tgantz-</b> I have problems putting my ideas on paper.</p> <p><b>cariblue49-</b> I need to learn how to answer English questions</p> <p>- not yet logged in (9)</p> <p>=====</p> <p><b>June joseph</b> – (comment) I am signing up now, but sometimes I get trouble and I am at a lost what to do. Can I rely on anyone to help me out?</p> <p><b>Mary</b> - (comment) I sign up for the research study too. I really want to pass CXC English bad. They told me it would help me pass, i want to see that. When it supposed to start again?</p> <p><b>Archie</b> – (blog entry) I hope this study helps me for my CXC English exam. I fail that exam so many times, i fed up now. okay anybody else here pass the exam or can give me any advise on passing the English exam would be great.</p>	<p><b>June joseph</b> - I am glad that you all ask me to join this study. The website is very helpful and I learned a lot.</p>	

Thematic code	Peripheral Participation	Transforming Participation	Full Participation
	<p><b>Elladi</b> – (blog entry) My name is Elladi and I am very happy to be here with everyone. I am from Jamaica. I hope I learn a lot from this study project</p> <p>=====</p> <p><b>post intervention interview data</b></p> <p><b>Ostlyng-</b> Yes, I still have to get ready for the English exam. Yes, I still need help.</p> <p><b>diana-</b> I still need help to pass the exam. I was busy with work and my child.</p> <p><b>gail leriche-</b> I wasn't able to log on because my internet was down. I still want you all to help me pass the exam</p> <p><b>dauidc-</b> Yes, I still feel that the website can help me pass my exams.</p>		

Thematic Code	Peripheral Participation	Transforming Participation	Full Participation
Perceived community practice	<p><b>Pre-intervention interview data</b></p> <p><b>diana</b> –you are answering questions for the exam and practicing to sit the exam</p> <p><b>dauidc</b>- is writing essays and answering questions</p> <p><b>tgantz</b>-talking about how to pass the exam and write exam essays..</p> <p><b>cariblue49</b>- talking about how to write essays and writing them</p> <p><b>june joseph</b>- you have to write English essays and keep a blog</p> <p>- not yet logged in (9) =====</p> <p><b>tburn</b> - (blog entry) I plan to write one of the weekly essay. It taking me long but I am doing it. I going to write the short story for the week. I like june summary essay, it was real good. i don't know if I could do one so good.....</p> <p><b>dauidc</b> – (comment) How did she (june joseph) know what to write? How did she pick out what to write and what to leave out</p> <p><b>giad</b> – (comment) This is good. maybe I will try to write an essay this week. I agree with tburn it is very hard from me to write essays but I will try anyway. =====</p> <p><b>Post-intervention interview</b></p>	<p><b>Tburn</b>- (comment) This was a very good summary that June wrote. Top class. June, I think you will pass your English exam with flying colours.</p> <p><b>Cariblue49</b> - (comment) June this is very very good! Congratulations! i am sure you are going to pass your english exam. Wish i could write summeries like that!</p> <p><b>Mary</b> – (comment) Hello June, you are very good at writing essays. I hope you write more so that I can see how you go about it. Congratulations on another good essay</p> <p><b>Archie</b> – (comment) I like your essay. It is very good. You have a way with words.</p>	<p><b>June joseph</b> – (comment) Thanks guys, one and all, for the encouraging words. You all should post some of your work so I can see. After all, we help each other learn and learn from each other.</p> <p><b>June-joseph</b>-(comment) Hi tburn, I think you should really try and write one of the weekly essays. Choose the one you are most comfortable with, although there are links to help you as you go along. "Grab the bull by the horns", because time is running out. Tomorrow is already Friday and our deadline is Saturday. Feel free to read my persuasive essay I have posted since yesterday and comment on it. Looking forward to your constructive criticism. Bye</p>

Thematic Code	Peripheral Participation	Transforming Participation	Full Participation
	<p><b>data</b></p> <p><b>diana</b>- Yes, I noticed the changes, I t showing more clearly what we have to do. I write one essay. I didn't know how to do the rest.</p> <p><b>dauidc</b> - Yes, I see the changes. More practice for exams with the essay and so on. Yes, I tries to write an essay but I was too busy.</p> <p><b>caribblue49</b>- Yes, I see the changes and they are good. I wanted to write an essay but the time pass so fast. I don't really post you know. I don't have much to say.</p> <p><b>mary</b> - Yes, I see the changes, I write couple of comment s. I write an essay too.</p>		

Thematic code	Peripheral Participation	Transforming Participation	Full Participation
Participation trajectory			<p><b>June joseph</b> – (comment) Thanks guys, one and all, for the encouraging words. You all should post some of your work so I can see. After all, we help each other learn and learn from each other.</p> <p><b>June-joseph-</b> (comment) Hi tburn, I think you should really try and write one of the weekly essays. Choose the one you are most comfortable with, although there are links to help you as you go along. "Grab the bull by the horns", because time is running out. Tomorrow is already Friday and our deadline is Saturday. Feel free to read my persuasive essay I have posted since yesterday and comment on it. Looking forward to your constructive criticism. Bye</p>

Thematic Code	Peripheral Participation	Transforming Participation	Full Participation
Self-identification	<p><b>Pre-intervention interview data</b></p> <p><b>gail leriche</b>- No I don't talk to anybody in there</p> <p><b>tye16</b>- No I do not feel connected to anybody</p> <p><b>patricia123</b> - I don't talk or chat because I don't know them people.</p> <p><b>sean knight</b>- I am too busy to comment or write. I am working and I usually just come on for a short time.</p> <p><b>diana</b>- No, I don't feel any sense of connection to the community.</p> <p><b>ostlyng</b>- No I don't know anybody there so I don't talk to anybody</p> <p>=====</p> <p><b>Mary:</b> (blog entry) i can hardly wait to see what this is going to be like. so far i still looking around. not too sure what we supposed to be doing now. if anybody want to know about me they could read my profile. and you could always send me a message. I will reply. luv from trinidad</p> <p><b>June joseph</b> – (blog entry) just using my initiative. I have already posted a photo of myself. I'm still trying.</p> <hr/> <p><b>Post-intervention interview</b></p>	<p><b>June joseph</b> to tgantz - (private message) Hi, I am June and I from Dominica and this is my first time here. Can you tell me anything I need to know? I really don't know what to ask. Just want to be friends?!</p> <p><b>June joseph</b> –(comment) Well done, Diana! I loved your summary. It was to the point and very easy to understand. Keep on doing the great stuff!</p> <p><b>Giad</b> – (comment) you covered all the problems that pop music and dance cause. and you show how badly they affect the youth. you did a really good job. Congrats!</p> <p><b>tburn</b> – (comment) Thanks a lot. I worked hard on it. I know it didn't even make 400 words but....at least I tried... right? You are boss when it comes to writing essay doh! I read your essays and I get a lot of ideas. I gonna try to write another one this week.</p>	<p><b>June joseph</b> – (comment) Hi tburn, I really love your essay. I like the way you pinpointed the actual irresponsible behaviors that can be linked with pop music and dance. I don't know if this was your first essay, but it was absolutely fabulous. Keep on keeping on! Looking forward to seeing more.</p>

Thematic Code	Peripheral Participation	Transforming Participation	Full Participation
	<p><b>data</b></p> <p><b>Archie</b>-No, I didn't really talk to anyone. I am not in contact with anyone from the website. No I am not a part of anything</p> <p><b>Caribblue49</b>- No I didn't advise anyone. I wasn't in contact with anyone. No I am not a part of that community.</p> <p><b>Tgantz</b>-No I didn't advise anyone. I am not in contact with anyone . I don't see myself as a part of that community.</p> <p><b>June joseph</b> – I tried to talk to some of them but they really didn't respond. I am not in contact with anyone regularly. No I wouldn't say that I am a part of the community.</p>		



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**ABSTRACT****PRACTICE AS PEDAGOGY: LEARNING THROUGH PARTICIPATION IN THE  
CARIBEXAMS ONLINE COMMUNITY OF PRACTICE**

by

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The purpose of this study was to develop community redesign strategies to support community members' participation in the CaribExams online Community of Practice and to investigate the impact of these strategies on members' participation levels and trajectories. CaribExams online community was developed to assist out-of-school learners who were preparing to sit for the Caribbean Examinations Council's regional English exam. The redesign project was developed to address an ongoing problem of low participation by members in the online community. A second purpose of the study was to investigate and empirically validate theoretically grounded design principles based on social practice learning theory advanced by Lave and Wenger (1991). Using a theory-grounded design method the critical attributes of the Community of Practice concept were extracted from the social practice learning theory framework. Generalized design principles were developed based on concept attributes and these were contextualized into redesign strategies for the CaribExams online community redesign project.

The redesign strategies were implemented over a four week period. 20 CaribExams community members agreed to participate in the study. The design and development study used

a mixed method research design and collected data using semi-structured interviews, website data logs and participant observation. Results revealed that although members' participation in the CaribExams online community improved as a result of the redesign strategies, these changes were not significant nor maintained long enough to represent a sustained trajectory toward full participation. Members' participation levels were only minimally affected by the implementation of the redesign strategies.

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